

LITERATURE OF MANUFACTURERS

Catalogues, bulletins and other direct advertising material recently issued. Manufacturers are requested to send copies of new trade literature promptly to Electric Refrigeration News.

Aetna

Rubberware service parts for ice cream cabinets are pictured in a small folder issued by the Aetna Rubber Co., Cleveland, Ohio. Parts included are: cabinet top-hole sections, brine hole stoppers, hole sleeves, and a collar for cabinet lids.

Crystal

All-steel apartment house cabinets designed for electric refrigeration are described in a folder received from the Crystal Refrigerator Co., Fremont, Nebr. Five models are illustrated with capacities from 5.2 cu. ft. to 6.5 cu. ft. Exteriors are of lacquered steel with white enamel or porcelain interiors.

Micarta

Micarta non metallic trays are described in folder No. 8027 released by the Westinghouse Electric & Manufacturing Co. The trays are made of a phenolic substance in three finishes, walnut burl, black, and tan, and are furnished in five sizes, the smallest of which is 9½x12½ and the largest 16½x22½ inches. Micarta strips are also being used for trim on display cases.

Rhineland

A broadside issued by Rhineland Refrigerator Co., Rhineland, Wisc., describes a line of cabinets having porcelain exteriors and interiors. Five of the models shown are suitable for mechanical refrigeration.

REQUESTS FOR INFORMATION

Readers who can assist in furnishing correct answers to inquiries or who can supply additional information are invited to address Electric Refrigeration News, referring to the query number.

Ice Cube Tray

Query No. 267—A reader in Wisconsin writes, "We are anxious to obtain the names of sources that could furnish a standard refrigerator ice cube tray 4 in. or 4½ in. wide by 10 in. long, or the nearest thing to that size."

Note—The Fedders Mfg. Co., 57 Tonawanda St., Buffalo, N. Y., manufactures an ice cube tray 4½" wide by 8½" long—Editor.

Addresses of Cincinnati Butchers Supply Co. and Ottenheimer Bros.

Query 268—A reader in Canada states, "We would appreciate having the addresses of the Cincinnati Butchers Supply Co. and Ottenheimer Bros."

Note—The Cincinnati Butchers Supply Co., 1972-2006 Central Ave., Cincinnati, Ohio. Ottenheimer Bros., Inc., Fallway and Hiller Sts., Baltimore, Md.—Editor.

Ward Electric Refrigerator

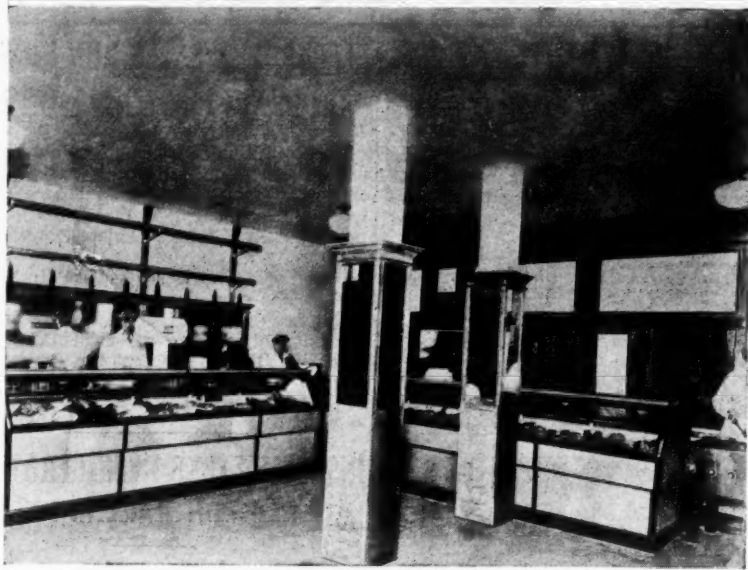
Query No. 269—A reader in Illinois asks, "Kindly advise me the kind and amount of refrigerant used in the Ward electric refrigerator. The cabinet contains 5 cu. ft. of storage capacity."

Superior Electric Refrigerator

Query No. 270—A reader in New York writes, "Kindly advise us what refrigerant the Superior electric refrigerator uses and what company manufactures this machine."

Note—The Superior Iceless Refrigerator, Inc., Canton, Ohio, manufactures the Superior electric refrigerator, which uses sulphur dioxide as the refrigerant—Editor.

Westinghouse Product Used As Trim On Display Cases



The Paul J. Daemicke Co., Chicago, manufacturers of refrigerated showcases for butcher shops, delicatessens and other types of retail stores have pioneered in the application of Westinghouse Micarta to their products, and, with the cooperation of E. N. Bowles, industrial salesman, and R. J. Brennan, Micarta specialist, of the Chicago office of the Westinghouse Co., have put Micarta to a number of uses in their products formerly requiring metal shapes and fittings.

Highly polished black Micarta strips made from plate stock are used as a trim for these cases, and make a pleasing contrast against a background of green or white porcelain. These strips

are made of laminated phenolic material, treated with a synthetic bond which under the action of heat and pressure assumes a hard smooth surface. "L" shaped angles also serve as trim around the edges and corners, and "U" shaped channels support all four sides of the glass windows. This glass is double, for heat insulation, and specially shaped channels take care of bracing the two sheets of glass and maintaining the proper air space in between. Arcs cut from Micarta tubing serve as baffle plates to guide the cold air from the refrigerating machine towards the food on display and away from the glass, to prevent it from being steamed up. Roller guide for sliding doors are made of Westinghouse Moldarta.

Gas Drums

Query No. 271—A reader in Illinois asks, "Can you give us the names of concerns manufacturing a gas drum, which holds exactly three pounds of ethyl chloride, also one holding exactly two pounds of the same refrigerant?"

Refrigeration Data

Query No. 272—A reader in Indiana writes, "Do you know of any book or booklet that has been compiled recently showing the complete line of the outstanding concerns, especially the commercial end of their business. What I mean something that shows the compressors or capacity, etc., similar to an insurance reference book that insurance men have showing the data on all companies. Also, is there available in loose-leaf form any data that will give reliable information on refrigeration, specifications, etc."

Note—There is no independent catalogue or data book for the electric refrigeration industry, such as is published for other fields. Information of this kind is given continually in the NEWS. Following are some of the subjects which have been covered in past issues:

- *May 8, 1929—Directory of refrigerator cabinet manufacturers showing sizes of stock domestic and commercial cabinets.
- Apr. 24, 1929—Ice cream cabinets and soda fountains. Also industrial refrigeration equipment.
- Apr. 10, 1929—Water coolers and beverage cabinets.
- *Mar. 13, 1929—New equipment number.
- Feb. 27, 1929—Refrigeration for the florist. Also refrigerators.
- Feb. 13, 1929—Restaurant applications. Electric wiring supplies.
- *Jan. 30, 1929—Grocery stores.
- Jan. 16, 1929—Meat markets.
- *Jan. 2, 1929—Annual catalogue and directory number.
- *Dec. 19, 1928—Production tools.
- *Dec. 5, 1928—Parts, materials and accessories.
- Nov. 7, 1928—Machine specifications.
- *Oct. 10, 1928—Dairy and ice cream equipment.
- *Sept. 26, 1928—Gas refrigeration.
- *Apr. 25, 1928—Electric refrigeration machine specifications.

Extra copies of the issues marked with an asterisk are available. Issues previous to Sept., 1928, cost ten cents per copy, while all others cost fifteen cents per copy.

Replies To Previous Queries

Query No. 262—Haines Motor Service, 20 South Fourteenth St., Newark, N. J., state that they manufactured the compressor used by the El Frezo Co.

"PLEASE CHANGE MY ADDRESS"

Recent movements of subscribers as indicated by changes in mailing addresses.

- Ahrens, Robt. S., from 193 Maria Ave., St. Paul, Minn., to Glenview Sta., Birchwood, White Bear Lake, Minn.
- Alfonso, Hector A., from 3721 So. Claiborne, to 1745 Prytania St., New Orleans, La.
- Allaman, N. R., from c/o Dayton Distr. Frigidaire, 300 W. Fifth St., to c/o Dayton Distr. Frigidaire, Box 436, Dayton, Ohio.
- Almivig, O. G., from Hot-N-Kold Corp., 417 Sutter, San Francisco, Calif., to P. O. Box 328, Everett, Wash.
- American Institute of Refrigeration, Louis Baron, Executive Sect., from 570 7th Ave., to 203 W. 13th St., New York, N. Y.
- Anderson, Arthur A., from 1079 Arkwright St., to 1308 E. 10th St., St. Paul, Minn.
- Automatic Freezer Corp., from 1716 Ford Bldg., to 1235 Book Bldg., Detroit, Mich.
- Barnaby, P. J., from c/o Dayton Distr. Frigidaire, 300 W. Fifth St., to c/o Dayton Distr. Frigidaire, Box 436, Dayton, Ohio.
- Bartram, Stuart, from Commercial Refrigeration Mfg. Co., 1020 E. 59th St., Los Angeles, Calif., to Billings Ozone Corporation, 520 N. Michigan Blvd., Chicago, Ill.
- Benson, E. C., from 2605 Columbus Ave., to 628 E. Lake St., Minneapolis, Minn.
- Benton, Milner D., from 542 Milwaukee St., Milwaukee, Wis., to Willow Springs, Mo.
- Blackinger, Arthur J., from 104 Park Ave., to 38 Feronia Way, Rutherford, N. J.
- Bossert, J. C., from c/o Jones Hardware Co., to c/o The Lima Kely & Home Equip. Co., 108 S. Elizabeth St., Lima, Ohio.
- Bracken, J. H., from the Celotex Co., 645 N. Michigan Ave., to the Celotex Co., 919 N. Michigan Ave., Chicago, Ill.
- Braun, A., from 103 W. 104th St., to 105 W. 104th St., New York, N. Y.
- Brooks, Joseph, from 4158 W. Gladys Ave., to 3839 Van Buren St., Chicago, Ill.
- Brown, D. B., from c/o Dayton Distr. Frigidaire, 300 W. Fifth St., to c/o Dayton Distr. Frigidaire, Box 436, Dayton, Ohio.
- Brown, W. R., from 139 N. Sutter St., to Box 457, Stockton, Calif.
- Burke, B. W., from 3351 N. Springfield Ave., to 3411 N. Crawford Ave., Chicago, Ill.
- Burk, S. A., from Oxford Court Apt. 10, to 1219 River St., Eau Claire, Wis.
- Candfield, A. L., from Grand Central Terminal Bldg., 42nd St., to Belding Hall Co. Coml. Dept., 1504 New York Central Bldg., 230 Park Ave., New York, N. Y.
- Cassidy, John D., from Box 452, Sound Beach, Conn., to 11 Eton St., Springfield, Mass.
- Castellucci, Hector A., from c/o Goldberg, 829 Lafayette Ave., to c/o Goldberg, 965 50th St., Brooklyn, N. Y.
- Chesney, Charles, from c/o Chesney Servel Co., 109 N. Jefferson, San Angelo, Tex., to R. 1, Box 57, Glendale, Ariz.
- Coff, A. E., from 3355 E. Jefferson Ave., to 2575 West Grand Blvd., Detroit, Mich.
- Deiters, J., from Sioux Center, Iowa, to 608 W. Willow St., Cherokee, Iowa.
- Demets, Lawrence, from Sioux Center, Iowa, to 1216 W. 18th St., Sioux City, Iowa.
- Downey, Harold L., from Copeland Refrigerator Co. of N. Y., Inc., 480 Lexington Ave., to Albert B. Ashford, Inc., 12 E. 44th St., New York, N. Y.
- Dry Ice Corp. of America, from 133 So. Division St., Buffalo, N. Y., to H. M. Taylor, 1318 W. 58th St., Cleveland, Ohio.
- Dunk, W. F., from 230½-17th Place, to 533 3rd Ave., Clinton, Iowa.
- Fehrman, Earl H., 1222 Leland Ave., to 4621 Magnolia Ave., Chicago, Ill.
- Fitzmaurice, G. K., from 300 W. Fifth St., to Box 436, Dayton, Ohio.
- Fowler, Elbert, from 3326 Wesley Ave., Berwyn, Ill., to General Delivery, Tippecanoe, Ohio.
- Freeman, Vernon C., from 410 N. 8th St., to 1115 Plum Ave., South, Grand Forks, N. Dak.
- Gable, A. E., from c/o Dayton Distr. Frigidaire, 300 W. Fifth St., to c/o Dayton Distr. Frigidaire, Box 436, Dayton, Ohio.
- Goodwin, J. W., from 660 Barnett St., N. E., to 691 Penn Ave., N. E., Atlanta, Ga.
- Granary, H. A., from c/o S. D. Woodard, Refrig. Dept. International Gen. Elec. Co., 120 Broadway, New York, N. Y., to International Gen. Elec. Co., Inc., P. O. Box 451, Ancon, Canal Zone.
- Greer, Norman R., from P. O. Box 605, Stockton, Calif., to P. O. Box 562, San Jose, Calif.
- G. R. S. Products Co., Inc., from B. K. Sheldon, Sales Mgr., Albany, N. Y., to B. K. Sheldon, Sales Mgr., Box 1052, Rochester, N. Y.
- Kallinan, Thomas, from 865 N. Hoover, Los Angeles, Calif., to 2752 E. First St., Long Beach, Calif.
- Hancock, Fred M., from 15772 Hartwell St., to 340 E. Grand Blvd., Apt. 302, Detroit, Mich.
- Hart, G. E., from 29 Endwell St., to Box 304, Johnson City, N. Y.
- Heideman, Fred J., from 139 Salem, to De-Luxe Apts., Salem and Grand Aves., Dayton, Ohio.
- Hillwick, F. B., from 109 Atlas St., Akron, Ohio, to c/o O. B. McClintock Co., Box 2064, Minneapolis, Minn.
- Hoxie, H. A., from 236 N. Andrews Ave., Fort Lauderdale, Fla., to 822 Main St., St. Joseph, Mo.
- Ibanez, Leonard C., from 1164 E. Van Buren, to E. Culver St., Phoenix, Ariz.
- Jensen, W. E., from 1331 Franklin, to 1646 High, Denver, Colo.
- Johnson, Philip M., from 176 Neal St., Portland, Maine, to c/o Kelvinator, Inc., 171 Sidney St., Cambridge, Mass.
- Jones, E. E., from 1080 Oakland Ave., to 139 Michigan St., Milwaukee, Wis.
- Jones, W. V., from 1376 Monroe St., to 1136 Greenlan, Memphis, Tenn.
- Jordan, Leroy M., from 257 Union St., New Bedford, Mass., to Emerson & Mason Inc., 834 Commonwealth Ave., Boston, Mass.
- Kelvinator Sales Co., from 151 No. Fifth St., to 114 S. 5th St., Reading, Pa.
- Kennedy, C. L., from 714 Francis St., to 813 Francis St., St. Joseph, Mo.
- Kitchowila, Joe, from 463-26th St., to 1317 Brown St., Milwaukee, Wis.
- Koslowski, John, from 206-9th St., Apt. 16, to 227-19th St., Milwaukee, Wis.
- Leary, Harry G., from 1122 Findlay Ave., to 1563 Yates Ave., Bronx, N. Y.
- Lee, Albert E., from 2728 Woodley Place, Washington, D. C., to 215 S. Farragut Terrace, Philadelphia, Pa.
- MacLennan, A. M., from Hotel Stats, Kansas City, Mo., to Wellington Hotel, Omaha, Neb.
- Marsh, J. W., from Box 1313, Yakima, Wash., to Gen. Del. Butte, Mont.
- Martin, E. E., from 1206 S. Ford Blvd., Los Angeles, Calif., to 631 Lincoln, Fresno, Calif.
- Mason, W. G., 812 Kanawha St., Charleston, W. Va., to 16 Avenue B—Egedale, Wheeling, W. Va.
- Melick, E. W., from 226 Avondale Ave., Haddonfield, N. J.
- Mile, E. H., from 414 S 1st St., Oskaloosa, Iowa, to 1119 E. Olive St., Bloomington, Ill.
- Minn. Power & Light Co., from c/o A. H. Herbert, Box 60, Little Falls, Minn., to c/o A. H. Herbert, Eveleth, Minn.
- Molyneux, H. M., from 1637 Ulster St., to 485 S. Franklin, Denver, Colo.
- Murray, J. E., from 300 W. Fifth St., to Box 436, Dayton, Ohio.
- Newport, H. F., from The Hibbard Co., 6504 Euclid Ave., to 1713 W. 68th St., Cleveland, Ohio.
- Niebling, F. W., from c/o F. W. Niebling Co., to c/o E. W. Bliss Co., Salem, Ohio.
- Nordskog, S. B., 1605 8th Ave., North, Fort Dodge, Iowa, to 1706 Palmetto St., Sioux City, Iowa.
- North, Robt., from 158 B. 85th St., to 150 B. 86th St., Rockaway Beach, L. I., N. Y.
- O'Brien, J. J., from c/o Stanley Auto Products Co., 4660 Merritt Ave., to 719 Fisher Bldg., Detroit, Mich.
- Olds, H. F., from c/o S. D. Woodard, Refrig. Dept., International Gen. Elec. Co., 120 Broadway, New York, N. Y., to S. African Gen. Elec. Co. Ltd., P. O. Box 1905, Johannesburg, South Africa.
- Ontario County Sales & Service, from 30 South Main St., Canandaigua, N. Y., to 737 East Ave., Rochester, N. Y.
- Otis, Frank, from 804 N. Broad St., to 2729 N. 13th St., Philadelphia, Pa.
- Owen, Jesse E., from Owens Farm, Big Flats, N. Y., to R. D. 1, Elmira, N. Y.
- Pellisser, C. A., from 244 West Newton St., to Suite 4, 100 Queensberry St., Boston, Mass.
- Phillips, H. D., from Petroleum Div., Southwestern Adv. Co., Majestic Theater Bldg., to Tracy-Locke-Dawson, Inc., Majestic Bldg., Dallas, Texas.
- Puffer, Paul H., 5008 Fremont Ave. S., Minneapolis, Minn., to 1551 Alexander, S. E., Grand Rapids, Mich.
- Radio Lighthouse, Inc., from 2902 Main St., to 701 Waugh Drive, Houston, Texas.
- Rawsthorne, J. K., from 5637 Woodcrest Ave., to 1902 Chestnut St., Philadelphia, Pa.
- Reiter, Al., from 10237 Yale Ave., Chicago, Ill., to 4278 Second Blvd., Detroit, Mich.
- Riemer, A. C., from 229 Manning Blvd., to 123 S. Main Ave., Albany, N. Y.
- Roberts, Geo., from Welsbach Washington Co., 1748 M St., N. W., Washington, D. C., to 3516 Spring Garden St., Philadelphia, Pa.
- Robinson, Thomas, from c/o Montana Electric Shop, 1411 Montana Ave., to P. O. Box 367, Santa Monica, Calif.
- Ryken, Leon H., from 160 E. Illinois St., Chicago, Ill., to 132 N. Ridgman Ave., Oak Park, Ill.
- Sala & Sala, from 1100 S. W. 22nd Ave., Miami, Fla., to Winchester, Ill.
- Sayward, Henry L., from San Cristobal Apts., San Juan, Porto Rico to c/o L. R. Wood, Inc., 122 Greenwich St., New York, N. Y.
- Smith, C. G., 325 W. Main St., Madison, Wis., to Devon Arms Hotel, Apt. 706, 6330 Winthrop Ave., Chicago, Ill.
- Southworth, John E., from 757 Mallison Ave., to 705 Damon, Akron, Ohio.
- Spayd, M. A., from 300 W. Fifth St., to Box 436, Dayton, Ohio.
- Stahl, C. S., from 611 Howard, to 835 Howard, San Francisco, Calif.
- Stull, W. B., from 300 W. Fifth St., to Box 436, Dayton, Ohio.
- Swarthout, Harry H., from 945 W. Grand Ave., Beloit, Wis., to c/o Philadelphia Electrical Co., Philadelphia, Pa.
- Symmonds, B. L., from 300 W. Fifth St., to Box 436, Dayton, Ohio.
- Tarr, Francis, from 729 Warrington Ave., to 715 Warrington Ave., Pittsburgh, Pa.
- Taylor, John B., from Gotham Apt. Hotel, 2718 Linwood Blvd., to 3830 Warwick, Kansas City, Mo.
- Thomas, Ben L., from c/o Kelvinator Sales Corp., 1910 Boren Ave., to c/o Mutual Creamery, 72 Columbia, Seattle, Wash.
- Thornton, James, from U. S. Daily Pub. Co., 2325 Dime Bank Bldg., to U. S. Daily Pub. Co., 2114 Dime Bank Bldg., Detroit, Mich.
- Tichenor, C. R., from 875 Bush St., to 1535 Green, San Francisco, Calif.
- Walters, Hugh, from 13555-12th St., to 2359 Monterey Ave., Detroit, Mich.
- Weatherly, Herbert L., from 4315 Lydia St., to 1935 Woodward Ave., Pittsburgh, Pa.
- Weems, Richard P., from 817 S. Grand Ave., Ft. Thomas, Ky., to 2157 Mt. Holly, Baltimore, Md.
- Whiting, Harold W., from 325 W. 25th St., to 2211 Myrtle, Erie, Pa.
- Whitmore, Harry, from Main St. and Whitehall Rd., Norristown, Pa., to 4635 Penn St., Frankford, Philadelphia, Pa.
- Wilkinson, Helen, from 2249 Book Cadillac Hotel, to Ceneration Milk Products Co., Oconomowoc, Wis.

THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance—Positions Wanted—fifty words or less, one insertion \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion \$3.00, additional words six cents each. Three insertions \$8.00, additional words sixteen cents each.

POSITIONS AVAILABLE

WANTED—Draftsmen also practical Engineers familiar with refrigeration machinery and plants. Apply by letter to Box 333, Salem, Ohio.

KELVINATOR SERVICE MAN thoroughly familiar with domestic and commercial installations. Permanent position. Box 181.

POSITIONS WANTED

CHIEF ENGINEER AVAILABLE—Ten years' experience in electric refrigeration with leading manufacturers in charge of engineering design and production methods. Wishes to communicate with manufacturer east of St. Louis. Box No. 180.

IS MANPOWER YOUR PROBLEM?

Let us put you in touch with a young, thoroughly experienced advertising and sales promotion manager who has outgrown his present position in the refrigeration industry. You will find him enthusiastic, ambitious and well versed in the mechanics of advertising. Of an analytical type, he believes in searching deep for facts for the solution of a sales problem. Promotional material he has prepared will stand the acid test. He is now employed but seeks an opportunity limited only by his capacity to grow. Salary \$4,000, Box No. 183.

WANTED—POSITION as sales manager with Kelvinator distributor; five years' Kelvinator experience, wholesale and retail; excellent record and references. Box 185.

HAVE HAD ten years' experience in electric refrigeration. Past five years as field man, branch manager and dealer work. Want position as factory field representative. Man large distributorship. Have been very successful in organization work. Capable most every phase of game; hobby for commercial work. Go anywhere; references. Box 184.

MISCELLANEOUS

BUSINESS OPPORTUNITY—Will sell a substantial interest in a well known manufacturing plant now making four sizes of domestic and commercial refrigerating units. This is a wonderful opportunity for one who is capable of building a selling organization. Our product is right and moderately priced. Address Box No. 175.

FOR SALE DOMESTIC REFRIGERATION UNIT

Fully developed—ready for production with parts for 200 units ready for assembling.

For further particulars address Box 182, Electric Refrigeration News.

FOR SALE

New H-5 Servel

Refrigerators\$100.00 each
Water coolers..... 80.00 each
Scene in Action sign at.....\$25.00

Empire Electric Machinery Company
Joplin, Missouri

Patents

Searches, reports, opinions by a Specialist in REFRIGERATION

H. R. VAN DEVENTER
Solicitor of Patents
Refrigeration Engineer
342 Madison Ave., N. Y.

KERO TEST

FORGED BRASS VALVES for Mechanical Refrigeration

Quality Shut-off and Cylinder valves in any standard designs or to your specifications.

KERO TEST MANUFACTURING CO.
2525 LIBERTY AVENUE
PITTSBURGH, PENNA.

Subscription Order

ELECTRIC REFRIGERATION NEWS,
550 MACCABEES BUILDING, DETROIT, MICH.

Please enter subscription to Electric Refrigeration News.

United States and Possessions:

☐ \$2.00 per year. ☐ Three years for \$5.00.

All other Countries:

☐ \$2.25 per year. ☐ Two years for \$4.00

I am enclosing payment in the form of

☐ Check ☐ P. O. Order ☐ Cash

Name

Street Address

City and State.....

Remarks:

ELECTRIC REFRIGERATION NEWS

The business newspaper of the refrigeration industry

VOL. 3, No. 25, SERIAL No. 75

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DETROIT, MICHIGAN, AUGUST 14, 1929

Entered as second class matter August 1,
1927, at the Post Office, Detroit, Michigan.

PRICE FIFTEEN CENTS

KEGEL PROPOSES RADICAL SAFETY TEST

UNFAIR PROPAGANDA FROM ICE INDUSTRY REVIEWED BY NEMA

President of Ice Association
Unable to Control Locals

CONVENING on the first day of August, the Refrigeration Division of the National Electrical Manufacturers' Association met at Cleveland to discuss problems common to the industry, divided itself into three parts, reassembled as a whole to consider the work done by its triad of sections, and emerged with a resolution of considerable significance, published elsewhere on this page.

The three sections were the executive committee, the technical committee, and the publicity committee. The technical committee attempted to reach an agreement on the details of construction and the amount of refrigerant to be contained in residential multiple systems. The publicity committee considered proposals to enlist newspaper editors in a campaign to combat the harmful effects of adverse publicity accruing from the Chicago situation.

Basing their discussion on the proposed code submitted July 26 by the special industry committee to a Chicago City Council subcommittee, the members of the technical committee considered additions and amendments to that section of the tentative Chicago code which deals with the details of multiple systems in residences. The committee was unable to agree.

The publicity committee discussed at some length recent publicity material issued by the ice industry "playing up" accidents in Chicago for which electric refrigeration had been blamed. It was reported that President Robbins of the Associated Ice Industries telegraphed local associations not to take advantage of the Chicago situation, which action stopped newspaper advertising by the associations, but which had no effect on the distribution of literature by ice companies.

Advertising within the industry relative to the Chicago affair was also discussed, as was the possibility of utilizing the National Food Preservation Program to rebuild what public confidence that might have been lost. It was agreed that future advertising should not stress the relative safety of refrigerants.

The list of representatives attending the meeting will be found on page 13.

KELVINATOR TREASURER



Howard A. Lewis, recently elected as treasurer of Kelvinator Corp., Detroit, who continues as vice-president and director of export operations.

CLEVELAND MAKES SURVEY FOR CODE

The Cleveland Health Department has just completed a survey of leading manufacturers of household refrigerating units with a view to finding what may be necessary, if anything, in the way of an ordinance providing for the installation and use of such systems in homes, it is reported by Dr. H. J. Knapp, Chief of Laboratories for Food and Drug Control.

The data gathered has been compiled in report form and turned over to Col. Elliott H. Whitlock, smoke commissioner, for possible legislative recommendations. Col. Whitlock would have charge of the enforcement of any such laws.

It is the opinion of Dr. Knapp, however, whose recommendations will undoubtedly carry considerable weight in the consideration, that if the adoption of an ordinance is considered, it should be a standard one such as it is hoped will grow out of the present discussion in Chicago.

THREE LARGE FIRMS TO BROADCAST FOOD PRESERVATION DRIVE

Kelvinator, G. E. and Frigidaire to
Make Announcements Over Radio

WALTER J. Daily, Earl Doty and Earl Lines, members of the advertising committee of the National Food preservation publicity on radio program, General Electric Co., Frigidaire Corp. and Kelvinator Corp., have announced that their firms will broadcast food preservation publicity on radio programs beginning probably the last week in August and continuing through September.

The national activity will be mentioned each Saturday night on the General Electric hour, and on the General Motors hour, Monday night, both on trans-continental hookups of the National Broadcasting Co. Kelvinator Corp. is now making final arrangements for semi-weekly broadcasts during the fall.

The National Retail Furniture Association has sent a 750-word special bulletin to all members of the association, outlining the program, and calling on the furniture men to participate actively. The California Fruit Growers Exchange has endorsed the activity and has offered to aid the movement in every possible way through all its agencies, and is strongly urging participation by all its business associates.

National Food Preservation advertising makes its debut in the September issue of the Cosmopolitan magazine, which is already on the newsstands. During the past week orders for sales promotion material have been received from one hundred cities. Mrs. E. L. Pomeroy, of the Georgia Power and Light Co., Blackshear, Ga., is the first woman to be appointed a city chairman in the drive.

Local Groups Order Material

An indication of the vigor with which participation has been planned, is presented in the amounts of the various tie-up materials already ordered at National advertising headquarters, more than a month before the active opening of the Program. More than 3,000,000 milk bottle jackets, 40,000 truck banners, 6,000,000 booklets for the information of competitors in the National Idea Contest for \$25,000 in prizes, 800,000 thermometers, and proportionately large amounts of other materials had been requisitioned before the last week of July.

In Utica, N. Y., the city health officer is acting as chairman for the Food Preservation Program, and one ice dealer in that city pledged \$500 to the local budget. In all parts of New York state, M. E. Skinner, regional director No. 3, reports, activities are progressing very satisfactorily. Buffalo, Syracuse and a number of smaller centers have sent in orders for tie-up materials. Mr. Skinner is helping the work along with a regional News Bulletin, which goes to all interested in participating in the movement in his territory.

District 6 Active

In District 6, where George Whitwell is regional director, dairy, refrigeration, gas, and electrical industries, in addition to the Merchants Association, are all co-operating to make the Pittsburgh Program effective. A large order for publicity material is being placed and the Duquesne Light Co. is putting out 200,000 leaflets describing the National Idea Contest, in addition to the MacDonald booklets. These will be distributed by the company's meter readers beginning August 15.

Washington, D. C., is preparing for the active work of the Program in September, as evidenced by the first orders for tie-up advertising materials placed by the organization in the nation's capital. C. M. Sharpe has been appointed by H. A. Brooks, regional director No. 7 to take direct charge of this work, and see that the District of Columbia is started in good shape.

Lexington, Louisville and other cities are being organized and work in this division of District 8, under C. L. Dunn, is progressing very satisfactorily. Toledo, Youngstown and Marion, Ohio, are the latest cities in that territory to be completely organized, and Cleveland's first partial order for tie-up materials is already in.

H. B. Lewis, regional director No. 14, has been making an intensive campaign to organize the activities of the program in his territory of Iowa, Missouri, Kansas and Nebraska. Lincoln, Omaha, Des Moines, and many smaller centers are completing their organizations; St.

(Concluded on Page 5, Column 5)

SUB-COMMITTEE APPROVES CODE ALLOWING MULTIPLES

Chicago Aldermen Hear Arguments On Proposed Refrigeration Ordinance

ALTHOUGH taken by surprise when Health Commissioner Kegel introduced a brand new code radically different in principle from the ordinances thus far submitted, adherents of the multiple system won "round five" of the Chicago battle for a new refrigeration ordinance by a wide margin before the Health Committee of the Chicago City Council Friday, August 9.

With Alderman T. F. (Terry) Moran, one of the most powerful figures in Chicago politics, holding the reins as chairman, the General Committee on Public Health of the Chicago City Council met in the Council Chambers and heard the report of its subcommittee on a proposed new refrigeration ordinance for the city.

DETROIT DRAFTING NEW SAFETY CODE

Drafting of a refrigerator ordinance, to lessen the danger from escaping refrigerants, was started on August 8 by the Detroit Department of Buildings and Safety Engineering. In the near future the City Council will be asked to approve the measure.

H. H. Mills, chief of the Detroit Safety Department, together with other city officials attended a conference of executives from various cities held recently at Chicago to discuss means of preventing refrigeration accidents.

Mrs. John C. Nagel, wife of the acting mayor of Detroit, is recovering from illness caused by the inhalation of ammonia fumes which escaped from a mechanical refrigerator in the Nagel summer home at Ann Arbor, Mich., a short time ago.

Alderman Eaton, as Chairman of the subcommittee, reviewed all its hearings on the subject, presented the Boiler Inspection Department ordinance (which had passed the subcommittee by a three-to-one vote), and offered as his own minority report a draft of a new code prepared by Commissioner Kegel of the Health Department.

Dr. Kegel's new ordinance, Alderman Eaton pointed out, confined itself to the consideration of household machines, and accepted the regulations of the Geaon (Boiler Inspection Department) ordinance on all other points. The Kegel code, it was explained to the members of the Health Committee, differed essentially from the Geaon ordinance in that it allowed refrigerating systems of any kind provided they are designed and installed so as to permit not more than two pounds of gas to escape in any dwelling room, or more than 10 pounds in the basement of a dwelling. The Geaon ordinance, on the other hand, permitted the installation of multiple

(Continued on Page 2)

Alderman Taylor's Fourteen Points in Favor of Multiple Systems

By Alderman James H. Taylor

AFTER careful consideration of the data brought before me as a member of the Chicago City Council subcommittee on the drafting of a new refrigeration ordinance, I hereby declare myself opposed to any measure which would stop the installation of multiple systems in favor of single units, because:

1. The Boiler Inspection Department, the best engineers in the country, and the Plumbing Department (which is a division of the Health Department) have all assured me that multiple systems can be made safe.

2. No cases of death have occurred from leaks in multiple systems which have been inspected.

3. Leaks that have caused deaths have been in the vicinity of the cabinet, and not in the piping leading to the cabinet.

4. Mechanical refrigeration is a great asset to public health by preventing growth of bacteria in foodstuffs; hence, fewer cases of food poisoning are produced. It thus plays a large part in keeping people well and making life more pleasurable.

5. Multiple systems are more economical, and can be installed more cheaply than single units; hence more people will receive, by their use, the benefits of electric refrigeration.

6. I am a practicing physician, and I have not yet met a single case of refrigerant gas poisoning among my clients, although I have many patients who are using multiple systems.

7. The death rate from multiple systems is infinitesimally low: 1/400 of 1 per cent. And all these deaths occurred in uninspected systems.

8. The public is sold on electric refrigeration; and it is our duty to see that as many as possible can receive its benefits.

9. The multiple system is much less dangerous than illuminating gas, from which 500 deaths occurred in Chicago in 1928; or the automobile, which has killed 510 people here this year (up to a few days ago).

10. We will allow some 20 to 30 firms which are making multiple systems in Chicago to continue in business.

11. We will allow thousands of workmen who are now employed in making multiples to continue to earn their daily bread.

12. I do not believe that limiting all units to two pounds of any refrigerant would be consistent legislation; because we know that two pounds of sulphur dioxide is 40 times as poisonous as two pounds of methyl chloride.

13. It has been shown that an inspected multiple system is as safe as a single unit; for there have been no deaths in connection with either. Hence, the two varieties are equally safe.

14. I believe in the American spirit of fair play and justice; and up to the present time no sufficient proof of the dangers of multiple systems has been produced to legislate them out of use.

Resolution of Manufacturers Condemns Destructive Advertising And Selling Methods

Distributors and Dealers Urged to Avoid Discussion of Refrigerants

EXECUTIVE representatives of electric refrigerator manufacturers present at the meeting of the Refrigeration Division of the National Electrical Manufacturers Association at the Statler Hotel at Cleveland, Ohio, August 1, unanimously endorsed the following resolution:

WHEREAS, the manufacturers of mechanical refrigerants are collectively interested in creating the largest possible group of prospective purchasers of their product and to share in the business so created according to their individual merits and,

WHEREAS, any expedient that may be adopted by individual manufacturers which may cause the public to question the merits of mechanical refrigeration of any type and thereby tend to diminish the total volume of refrigeration sales is harmful to the industry generally and in the last analysis to the individual manufacturers,

THEREFORE, BE IT RESOLVED that the Refrigeration Division of NEMA does not approve selling or advertising policies or any other expedient which encourages discussion of the relative merits of the various types of refrigerants and,

BE IT FURTHER RESOLVED that the members of this organization will use every means at their disposal to restrain their distributors and dealers and all employees of such organizations to act according to the spirit and the letter of this resolution.

CHICAGO ALDERMEN DISCUSS PROPOSED ORDINANCES

Copeland

DEPENDABLE
ELECTRIC
REFRIGERATION

Growing Steadily Gaining Favor Everywhere

Nineteen twenty-nine thus far has been a banner year in Copeland's history . . . marked by expansions in manufacturing facilities, in distributing outlets and in actual sales. July of this year saw an all-time record for July shipments (20% greater than June), in spite of which, the first of August witnessed a carry-over of the largest number of unfilled orders ever recorded at this time of the year.

There are reasons for this unprecedented growth—reasons involving sound management, a complete line of high quality products for every domestic, multiple and commercial purpose, a range of prices with which to satisfy every preference, an enthusiastic sales organization, a national good-will that is growing stronger every day.

Everywhere the talk is of Copeland and of Copeland's latest "gift" to its dealers—the largest, finest, most powerful electric refrigerators ever offered in the low-price field. If you are a dealer, let us put you in touch with our live-wire, money-making proposition . . . for you, too, can profit from Copeland's rapidly mounting popularity!

COPELAND SALES CO., 630 LYCASTE AVE., DETROIT

Copeland

DEPENDABLE ELECTRIC REFRIGERATION

(Continued from Page 1, Column 5)

systems which use as much as 100 pounds and, in some cases, 300 pounds of refrigerant.

Immediately a squabble developed among the city solons when Alderman Ringa insisted that the word "unqualifiedly" be stricken out of the record in the report that Aldermen Ross and Taylor had "voted unqualifiedly for the Gearon ordinance." These men were "qualified" to express an opinion on that subject, Ringa maintained. Alderman Eaton explained that he had meant "unreservedly," but even this did not satisfy Ringa and Ross.

Ordinances Identified

Chairman Moran spent considerable time trying to get it straight in his own mind and in those of his associates just which of the two ordinances presented by Alderman Eaton was the one passed by the subcommittee, and which was the minority report. Dr. Kegel and Mr. Gearon each identified copies of the ordinances each had prepared, and Mr. Gearon stated that there had been no changes in his ordinance since it had been passed by the subcommittee.

Before Dr. Kegel was given a chance to explain the revision of his code, Alderman Taylor criticized the Health Commissioner's new scheme with these words:

"I would like to offer a criticism to the statement about using two pounds of any refrigerant. Death from gases is due to concentration and toxicity. Now, then, we have had before us here statements that sulphur dioxide (and of each of these we are allowing two pounds for refrigerant), is forty times more dangerous than the methyl chloride. Therefore, wouldn't it be reasonable to say that 80 pounds of methyl chloride and two pounds of sulphur dioxide would have the same toxicity? The ordinances allow two pounds of any refrigerant, irrespective of the toxicity of the refrigerant."

Chairman Moran then called upon Commissioner Kegel to explain the new provisions in his ordinance. The Commissioner was frequently interrupted by inquisitive Aldermen, whom he attempted to answer in detail. Dr. Kegel's speech, together with the interruptions, follows:

Kegel Makes Statement

"Mr. Chairman: To begin with, this is an old controversy of about thirty years of standing. For 30 years in the refrigeration industry there has been a controversy as to safety. As more and more of these artificial methods of refrigeration were being introduced, this controversy has increased."

"The Health Department began work on this problem about 11 months ago. We were particularly interested in domestic refrigeration. We were having accidents from time to time; and finally, within the last few months, we have had some very severe cases."

"We have had 29 people who were overcome with gas and are still suffering from the after-effects of the refrigerating gases. We have had 10 deaths—10 deaths that we term in the Health Department as 'unnecessary'."

Alderman Meyerling: "May I ask you what you mean by 'unnecessary deaths?'"

Dr. Kegel: "If you don't mind, I'll get to that in a few minutes. We find as the Health Department has gone into the subject that there has been many and many a discussion on safety in practically every large city in the United States, especially in the East. The object has been to arrive at the correct method of establishing safety."

"In the City of New York it was finally thought that multiple systems were to blame entirely, and multiple systems were ruled out in the city of New York. Other cities have taken this up. They have all worked on it, but the outstanding feature of it all is that in none of these other cities have they had the experience that we had in Chicago with regard to the danger to health from these refrigerating gases. It was taken up in other places mainly as a matter of fire hazard—these gases leaking out causing a danger to the firemen—so that here we have for the first time real bona fide evidence that these gases are a danger to human beings, causing death and ill health."

To Limit Gas Content

"I want to say that when we first started our investigations, we took up the matter in the same manner in which New York took it up—that is, we thought it necessary to eliminate multiple systems. We felt that this was a fundamental principle upon which to base our safety measures."

"Our next consideration was the limiting of the amount of refrigerating gas. It was claimed by the industry that 300 pounds of the gas could be safely used in a refrigerating system. It was also claimed by their engineers that these gases could be contained in a system which could not leak and which could not endanger health, provided that it was properly installed."

"As a result of our experiences, it was agreed that the two fundamental principles were concerning the amount of gas and the limitation of the multiple system. This conclusion gave rise to a great deal of controversy from both sides. It might be said that we were discriminating between one system and another."

"In considering the matter we tried to bring it down to a fundamental principle. In the final draft, which is before you at the present time, we have left out all discussion with regard to the mechanics of the multiple systems, single systems, or any other systems that might be brought up. We are considering only the matter of health, and our conclusions are based upon the work of experts and chemists in our Department and the U. S. Bureau of Mines."

"This new provision is based upon the amount of gas that is required to cause illness or to cause death. After going over the situation very carefully, we have come to the decision that any system which will permit enough gas to kill or to cause illness should be corrected. Therefore, in our Section 2156H 'LIMITATIONS AS TO USE,' we have inserted this:

Reads Section

"No direct refrigerating system other than approved unit systems, containing a refrigerant that is flammable, poisonous, noxious, irritating, dangerous or detrimental to health, shall be installed or maintained in any place of human habitation, unless such system is tested and approved by the Commissioner of Health and found to be so designed, constructed and maintained that not more than two pounds of refrigerant can escape or leak therefrom during a period of twelve hours or less into any place of habitation through any possible leak or rupture of the system, or more than ten (10) pounds can escape or leak therefrom during a period of twelve hours or less into any basement, cellar or uninhabited part of the building in which such system is located."

Alderman Meyerling: "May I interrupt? What is the uninhabited part of a building?"

Dr. Kegel: "A basement. We define as the uninhabited part, the place where the compressor or where the motor that circulates this gas is enclosed. This paragraph, we feel, simplifies and does away with a great deal of unnecessary argument with regard to the contention of the Boiler Department and the Aldermen who have felt that multiple systems could be made safe."

"We have stated in this paragraph that systems may be installed, provided they are so constructed that not enough gas can escape sufficient to kill an individual in an apartment (building) of, say 4,000 cubic feet."

Alderman Ringa: "What is two pounds and what are ten pounds?"

Explains Pound Limit

Dr. Kegel: "It means this: A refrigerating system requires a certain number of pounds of gas to be circulated in order to produce refrigeration. Some of these systems hold as much as a thousand pounds. It is a fact that refrigeration can be produced with the use of a much smaller quantity of gas. At first, 300 pounds were allowed as the maximum, then we came down to 100 pounds to be circulated."

"Now our experiences and our experi-

ments show that large amounts of gas, that is, over two pounds, leaking into an apartment are sufficient to kill or sufficient to cause illness. Other than that our work shows that it is reasonably safe. In other words, we are willing to stand for any system that will permit, in case of accidents, the discharge of two pounds of this poisonous gas into an apartment and no more."

"We differentiate between two and ten pounds; two pounds into any place where people live, eat, or sleep; ten pounds may be permitted to leak into a place where no one sleeps, etc., or, besides, which is a closed room with no outside ventilation, which has tight walls and which cannot be inhabited by anyone. We do not feel that we should permit more than ten pounds to be allowed to escape up through an entire building."

Alderman Sloan: "Is two pounds sufficient for a refrigerator?"

Dr. Kegel: "Yes. This permits refrigerating systems, multiple systems, or any systems to be installed, provided that not more than two pounds can leak out. Perhaps there are others who could explain the technical end of it better. For instance, you could have 30 pounds, or fifty pounds, provided a break in the pipe does not permit more than two pounds to escape. It is a problem for the industry. It permits the engineers and manufacturers to work out a method."

In answer to the insistence of several Aldermen that the meeting be adjourned as soon as possible, Chairman Moran suggested that each member of the subcommittee be called in turn to explain his vote on the two ordinances, after which they could be questioned by the other members of the Health Committee, and then the entire group could go home to study the two codes before further deliberations.

Sloan Takes Stand

Alderman Sloan was first on the stand. Said he: "Mr. Chairman, in explaining my vote in the subcommittee, I took the position that this question of individual units and multiple systems was not so much a question of apparatus as it was of the gases that were to be used in the refrigerators. While it is true that most of the deaths that have occurred in Chicago came from one particular gas and one particular system, I know it has not been explained to me what we are going to do with the multiple systems already installed."

"I believe in the ordinance that we have discussed that there are probably safeguards that can be thrown around the use of these gases so that the multiple system may be used. I reserve the right to change my vote in the event that the final ordinance does not contain all the precautions that we have discussed, and that were taken in the ordinance as it was finally presented to the Council."

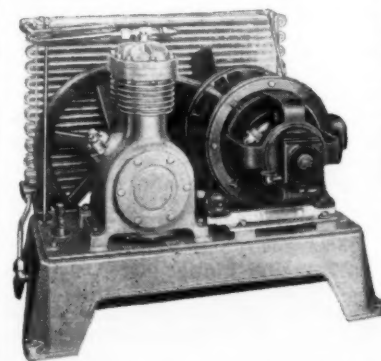
"That is the only reservation that I made—I am in favor of the multiple system with the precautions that have been inserted in the final ordinance."

Alderman Taylor, a practicing physician and former college professor, was called by Chairman Moran to review the testimony he had heard in subcommittee meetings, and to outline the conclusions he had deduced with reasons therefor. Calmly and convincingly he stated his case, summarizing the arguments for the multiple system (like Wilson at Versailles) in 14 points. See page 1.

Inasmuch as Alderman Eaton had explained his own position in making the official report of the subcommittee, Chairman Moran passed up his name in calling on individual members of the subcommittee for expressions of opinion. Alderman Ross, the remaining member of the subcommittee, had been called out of the meeting, so Mr. Gearon of the Boiler Inspection Department was asked by the chairman to elaborate on the important features of his code. He stated:

"There was a bad accident in the Stock Yards back in 1907 which brought about the original refrigeration ordinances. They were passed in 1909, and refrigeration matters have been under the jurisdiction of the Boiler Department."

(Concluded on Page 4, Column 4)



Compressors and Condensing Units 75 to 2500 lbs. I. M. C.
Air and Water Cooled for Sulphur, Methyl or Butane

KULAIR CORPORATION

PHILADELPHIA, PA.

EUREKA!

That's what they all
say about

KULAIR

Products, Policies
and Prices
Based on
Common Sense

Communicate With Us
for
Electrical Refrigeration





The new Kelvinator Four, \$175 f. o. b. Detroit. Built of rust-proof steel. Nearly 9 square feet of shelf space.

With July Shipments

110%

Greater than Last Year

Kelvinator Dealers Are Already Assured of the Most Profitable Year in Kelvinator History

Again in July, Kelvinator shipments maintained the record pace set early in the year, with an increase of 110%—in excess—double those of July, 1928.

Heretofore June has been the peak month in electric refrigeration sales. But in the month just closed, Kelvinator shipments far exceeded even the record previous month's Kelvinator business.

Orders for July, 1929, were three times the orders for July last year. August shipments promise to double those of August, 1928, and orders on hand for September shipment are greatly in excess of shipments for all of September last year.

Thus it will be seen that Kelvinator business is increasing at the period of the year when the seasonal trend is toward a decline.

Even though the balance of the year shows only normal sales, the thousands of dealers selling Kelvinator are already assured of the biggest year's business in their history.

Small wonder that the electric refrigeration industry's most aggressive dealers are seeking out the Kelvinator franchise as the most profitable and assured source of sales for the coming year.

Kelvinator's rapid progress and success in all branches of electric

refrigeration, reflects not only complete public acceptance of the rigidly high quality and value of Kelvinator products, by the intelligent cooperation of an exceptionally fine body of dealers.

It bespeaks also the completeness and thoroughness of Kelvinator selling aids to dealers, including the assistance of expert field men, comprehensive national advertising effort, consumer literature and out-door advertising.

We will gladly forward convincing facts and figures on the possibilities of the Kelvinator electric refrigeration franchise to interested dealers. Write or wire Sales Department, Kelvinator Corporation.

KELVINATOR CORPORATION

DETROIT, MICHIGAN

DRY-ZERO INSULATED CABINETS OFFER YOU 5 DISTINCT SELLING ADVANTAGES!

REDUCES
RUNNING
TIME

ELIMINATES
ODOR
TROUBLES

MORE MULTIPLE
CABINETS PER
MACHINE HOOK-UP

REDUCES
WEIGHT

COSTS
NO MORE

POINT NO. 1

"The machine in this Dry-Zero insulated refrigerator runs 15% fewer hours per day and yet maintains the same correct temperatures. This story—for it is a story—from manufacturer to distributor, from distributor to dealer, from dealer to salesman, and from salesman to customer, is a vital sales lever. It gives a margin of advantage that means increased sales.

The insulating efficiency of Dry-Zero, proved (U. S. Bureau of Standards tests) to be the most effective known commercial insulant, reduces the job of the machine. With less heat entry, relatively less refrigerating effort is required. Less wear and tear on parts insures longer life with considerably less service.

This is one of the five reasons why so many manufacturers, distributors and dealers insist on Dry-Zero insulated refrigerators. Dry-Zero insulated refrigerator cabinets are easier to sell. Ask your manufacturer for them!

DRY-ZERO CORPORATION
130 N. Wells Street, Chicago, Illinois

Comparative Values

established by U. S. Bureau of Standards, Armour Institute, State Universities and other impartial authorities.

Material	Wt. cu. ft.	Insulation Value	Absorption*
DRY-ZERO	2 lbs.	4.15 to 4.3	14
Corkboard	9.5 to 13 lbs.	2.9 to 3.3	28
Wood fibre board.....	13 lbs.	2.9 to 3.2	115
Flax fibre board.....	13 lbs.	3 to 3.2	66
Cane fibre board.....	15 lbs.	2.7 to 2.9	78
Mineral wool slab.....	17 lbs.	2.6 to 2.8	

*Test run by University of Minnesota.

Since the running time of the machine, the wear of its parts, and the efficiency of the entire refrigerator depends largely upon cabinet insulation, the authoritative proof of Dry-Zero's greater resistance to heat shown in this chart is important to the entire industry.

Dry-Zero Pliable Slab is easily installed and hermetically sealed in a single operation by pressure alone. Dry-Zero is permanent and will not deteriorate. Clean and white, it has a natural aversion to moisture. The Dry-Zero fibre, Ceiba, is the same as that used in all U. S. Navy life jackets. For many years Dry-Zero has been used for insulating high duty railroad refrigerator cars.

*Keep them on your finger-tips!
They help you sell!*

DRY-ZERO

CHICAGO ALDERMEN HEAR CODE REPORT

(Continued from Page 2)

ment since that time. The ordinances as drawn did not only apply to manufacturing places; in fact, the ordinance, as it was then, was much broader than either of these ordinances. However, the ordinances we admit are antiquated.

"The Department has been working toward a proper ordinance for the last five years. We had hopes to be able to present that to the City Council this year, but because of the hysterical situation created within the past few weeks, we had to hurry it through. I want to say that as far as the reports of the subcommittee are concerned, I don't think anyone has had time to go over this new ordinance that was presented this morning.

"Our code is the same as presented at first. We specify as to the material to be used, as well as how the joints should meet, and the proper safety devices to be used in these installations in case of fire. We think we have gone about as far as can humanly be done at this time. I do not wish to state that this ordinance is perfect. In our hurry there may be some points we have overlooked.

"The Health Department brought out the question this morning of the amount of gas that can leak out. Perhaps that is an important point—I can't consider it so. It is not the duty of the City of Chicago to legislate how any leak can be stopped. The thing is to tell the manufacturers and the people of the City of Chicago to make their construction in such manner that refrigeration can safely be used.

"I am prepared to elaborate on the different provisions of the ordinance if the committee wishes me to do so. I think that the committee should be given some time to consider this ordinance. I will gladly co-operate at any time."

Alderman Ross still being on the missing list, Senator Essington grasped the opportunity to present to the Health Committee a third code, one prepared by the manufacturers' technical committee. Representing substantially all the manufacturers of electric refrigeration, the former Illinois State Senator offered the industry code with these words:

Essington Presents Code

"I have read both these ordinances. I have not read the Kegel ordinance of August 9. I saw it for the first time about 30 minutes ago after I came to this meeting. The committee reported with reference to two proposed ordinances, the so-called 'Boiler Department ordinance,' which was presented and of which a copy was given to us a few days ago; the other with reference to the Kegel ordinance, which I say I have not seen prior to this meeting.

"Dr. Kegel presented an ordinance which we call the ordinance of July 18, 1929. Now, the makers of refrigerating machinery studied that ordinance very carefully and with reference to that ordinance, presented a suggested revision of the ordinance. No reference was made to that except very generally in the report.

"I wanted to ask for some information—if we should submit to each member of the Health Committee a draft of that ordinance, would it be considered? We wish that you might read that in connection with the two ordinances which are suggested today.

"It is the recommendation of the manufacturers of refrigerating machinery, based upon the reports of the experts, and the chemists and their employees and their experience of more than 20 years standing. It is based upon this principle—if the machinery is mechanically perfect and if it is installed in a manner approved, if it is subjected to the right kind of inspection, we believe that any possible risk will be reduced to a minimum.

"I might say that the Dr. Kegel ordinance of July 18th contains many features, with which we are entirely in sympathy, but the Boiler Department ordinance covers the mechanical features and the provisions we are interested in, and, I am sure, in the main is in a form which will meet the situation practically.

"As an industry, we don't want to enter into any discussion of any inter-departmental nature. All we are interested in is an ordinance which will permit refrigeration and insure safety to the consumers. We will co-operate with the committee."

Just after Senator Essington finished with his presentation of the industry code, the absent Alderman Ross returned, explained that he had been in another City Council committee meeting, and elucidated his adherence to the Gearon ordinance. He stated:

Ross Explains Position

"I believe we should try to get together the facts to base our decision on. It is reasonable to suppose that with the number of arguments that have been brought out, that it is a big problem and that it may be subject to change from time to time. I want to say that Mr. Fremont Wilson, consulting engineer from New York, has been the greatest enemy of the multiple system. He even is said to be the father of the New York code.

"He came down here of his own voli-

Other Chicago News In This Issue

Report of Subcommittee Hearing, Aug. 2.—Page 8.

Editorial, "Tests vs. Specifications."—Page 12.

Complete Draft of Dr. Kegel's New Code.—Pages 18, 19.

Electrical World Editorial, "Chicago Affair Demands Action."—Page 20.

Complete draft of Gearon Ordinance.—Pages 20, 21.

New York Herald-Tribune Editorial, "Refrigerator Gases."—Page 21.

E. T. Williams Explains How Multiple System Can Conform to New Kegel Code.—Page 22.

tion because he was interested in the subject and wanted to give us the benefit of his knowledge of refrigeration matters. He stated in open meeting that the reason for the New York code barring the installation of multiple units above the first floor was because of commercialism.

"We asked him if we eliminated commercialism would the installation of multiple units be satisfactory. He said 'Yes.'

"We, as a committee have several different functions. We have to consider public policy, and I believe we should consider all of these facts when we draft a code. There has been an unfortunate mortality connected with this thing, which in the majority of instances, is a result of faulty installation and lack of inspection.

"I believe we should allow the multiple system, but that we should throw around its use all the safeguards possible for the protection of life and health. I believe that with the proper code and supervision that multiple units can be used with a degree of safety that would warrant going in for them.

"Now, gentlemen, it is a big question and a broad one, and I am sure that everyone here is for solving this problem for the best interests of everybody concerned. I have taken my stand relative to the two ordinances because that is my position in the matter, and I believe that the growth of the industry will prove to the majority of human beings that the manufacturers will safeguard these machines to the utmost degree possible."

Williams, Muffly Talk

The deliberate voice and Eastern accent of E. T. Williams of Servel was heard next, challenging Alderman Ross concerning his quotation of remarks made by Consulting Engineer Fremont Wilson at a subcommittee hearing. This question was muddled over and banded about until Alderman Taylor secured a change of venue in regard to subject matter by asking for statements from the engineers present concerning the feasibility of the Kegel plan. He was answered by Glen Muffly of Copeland Products, Inc., and Mr. Williams. Their remarks follow:

Mr. Muffly: "We have no device to stop leakage available at the present time and we feel that rigidity and security of the tubing is more dependable than automatic devices. At present I don't know of any device that can be used to determine the amount of leakage of gas in a system. That is a very difficult problem to deal with and I know of nothing now which can answer that problem. However, I am not saying that it is not possible. At any time we may discover just such a device that will limit the leakage to two pounds.

Mr. Williams: "I haven't very much faith in these delicate devices for shutting off gas—they get out of fix too easily. However, it is possible to limit the amount of gas at various points in the system. You would have to limit the amount of fluid refrigerant in the lines. The whole high side would have to have a definite limit and each evaporator would have to have a delicate limit. The several pipes would have to be provided with check-valves to prevent back-flow from various parts of the system.

"That could be done and you would have no delicate mechanism to contend with. I think that is entirely practicable. I don't know of any way to hold the two pounds if you permit 100 pounds in the system."

After this discussion, the meeting was adjourned until Thursday, August 15, at 10:30 o'clock in the morning.

CORRECTION

John Usher advises that he is president of the Ideal Heating Co., Chicago, Ill., and connected with the Ideal Refrigeration Supply, and not with the Mid-City Heating Co. as stated in the reports of the Chicago code hearings, which appeared in the July 17 and 31 issues of the News.

National Food Preservation Campaign

G. E. DEALER TEACHES FOOD PRESERVATION TO SCHOOL CHILDREN

Finds It Valuable Method of Interesting Parents

THE William LeVecke Co., dealer in General Electric refrigerators in Orange County, Calif., is conducting a systematic campaign in educating the public in the science of food preservation by electric refrigeration. This company has stores in the cities of Fullerton, La Habra, Anaheim, Orange, Santa Ana, Newport Beach, Laguna Beach, Huntington Beach, San Juan Capistrano, and San Clemente. A few of these are just display space in general stores but most of them are full-sized, independent, General Electric refrigerator stores.

I interviewed J. A. Henle, manager of the Santa Ana store, 420 North Broadway, and sales manager for the southern part of the county, and he gave me the details of the plan that is working out so successfully in teaching the people why and how electric refrigeration is necessary and efficient in preserving food.

"You have to begin with the children," he said. "We considered various other beginnings, like Women's clubs and similar adult organizations, and are still carrying on this sort of work. But we soon discovered that in this innovation, as in all others, it is the coming generation that one must appeal to for good and lasting results."

"When we had proven that to our satisfaction, the next question was how and where to get in touch with the children. Naturally the domestic science courses in the schools seemed the logical avenue of approach. But it was not an open road by any manner of means. We had to sell the idea to the school boards and the domestic science teachers first. We offered to install machines for demonstrations, to send our lecturers up to the class rooms, and to help practically in every way we could to put the campaign across. We wanted, of course, to equip the domestic science laboratories in all the high schools with General Electric refrigerators."

"We teach electric refrigeration, not specifically the General Electric brand of it, or at least not at first. The most outstanding feature of our work with the schools is the help we give the pupils in writing essays on electric refrigeration. They come to our stores to talk with our salesmen, and we loan them books and pamphlets, suggest public library books, and answer questions for them. Conservative estimates of the number of pupils we have helped in this way are: Santa Ana High School, 500; Huntington Beach, 200; Orange, 300; and Garden Grove, 150. This next year we shall introduce the work into others of the towns in my territory."

"Through these children we reach the parents. We find that in the homes the older peoples are hard to convince sometimes. The opposition to electric refrigeration is from two main sources in this section: the old white pioneer stock, that has gotten along somehow without any sort of refrigeration, even in this hot country, except a contraption of wet burlap and shelves called a 'California cooler.' You'd be surprised at the number of well-to-do white families of old settlers who still use these makeshifts that cool by evaporation. And the other objectors are the Mexican adults, who pin their faith to the porous pottery jars called 'ollas', which also cool by evaporation. But not down to the 50 degree point!"

"Our library includes the best literature available on the subject. Perhaps the two favorites are the pamphlets and colored pictures from the Ekroth Laboratories and Hull's textbook on electric refrigeration. Our salesmen are using the Ekroth albums on their first calls on prospects, which are always strictly educational, in a general way, and not specifically a General Electric way. These albums include four actual color photographs of various types of food, like milk, orange juice, bouillon, pork chops and roast beef, which was divided exactly in two parts with one stored in an ice box of the best grade and the other in a standard model General Electric refrigerator. The pictures show them before and after: a graphic lesson in the advantages of the dry and unfluctuating refrigeration."

"We also give lectures and demonstrations to Women's Clubs, churches and Ladies Aid Societies, American Legion, with programs along the same lines as we follow in the schools and in the homes. The George Belsey Co., Los Angeles, General Electric distributors for southern California, have a domestic science expert, Mrs. Spencer, who helps us in these demonstrations. We usually serve salads or ices or both. We have about thirty salesmen in my territory, all of them full-time men, working on commission."

FOR THE DEALER

Why 50° is the Danger Point!

\$25,000.00 for an Idea!

and We'll Give You the Assistance and Information You Need to Win

September NATIONAL FOOD PRESERVATION MONTH

One of several pieces available to Kelvinator dealers, tying in with the 50 degree campaign.

KELVINATOR ISSUES LITERATURE ON FOOD PRESERVATION DRIVE

Kelvinator Corp., Detroit, Mich., has recently issued several pieces of literature for use by its dealers and distributors which capitalize upon the National Food Preservation Program.

Form No. 2090 is a small folder which is entitled "September, National Food Preservation Month — and What It Means to You." A calendar for the month, and an illustration of foods in color is printed on the outside. Announcement of the National Program is made, with an offer of the service of the entire organization to the public to demonstrate and explain safeguarding of the family health by means of proper refrigeration. The essay contest is summarized and the 50° emblem is given a prominent place. Emphasis is upon the \$25,000 in cash prizes and "Why 50° Is the Danger Point." On the inside, illustrations in color are designed to appeal to the housewife, and the topics discussed are: The vital need for proper year 'round refrigeration; constant, uniform, dry cold the only way to keep foods safe, and the advantages of Kelvinator in these connections.

Form No. 2091 is a broadside which uses the essay contest as a keynote. The accompanying illustration shows one of the outside parts of this broadside. Rules and prizes are detailed, and customer visits are motivated by offering personal attention from representatives, and a free copy of the booklet entitled, "What Every Woman Should Know about Keeping Food Safe." One section urges installation of a Kelvinator as one practical method of getting information on food preservation. A blank space is left for the name and address of the local representative and the broadside is attractively illustrated in color.

Form No. 2092 is a 24-page booklet designed to appeal particularly to women. Decomposition and microbe growth are discussed in a simple elementary style. A graph shows findings of the Bureau of Home Economics of the United States Department of Agriculture on bacterial growth in pasteurized milk when held in refrigerators at different temperatures. Findings of other experimenters and of doctors are mentioned. The unreliability of taste and smell as tests of tainted food are brought out. Illness and economic waste due to food spoilage are emphasized, and numerous sales arguments for the Kelvinator are included. The whole booklet is profusely illustrated with dainty pictures in color.

A printed ticket, to be filled out with names and addresses of those who attend demonstrations and lectures on food preservation, is also ready for use by dealers and distributors in September.

Forty-eight G. E. Units Installed in Savannah Apartment

Yindsay & Morgan Co., Savannah, Ga. recently installed 48 General Electric refrigerators and two icing units in the De Renne Apartments at Liberty and Drayton Sts., Savannah. The order is reported to be of the largest ever placed in this district.

California Dealers Planning Exhibits at Orange County Fair

The Orange County Fair, held annually in Santa Ana, Calif., will open August 28 this year and will have a special electric refrigeration display with demonstrations. R. D. Flaherty of the fair staff is in charge of this section.

Cleveland Health Official Sees Need for Refrigeration

Dr. H. J. Knapp, Chief of Laboratories for Food and Drug Control, City of Cleveland, is an ardent advocate of home refrigeration. Dr. Knapp says, "Food control is the most important function of our Health Department."

"Yet, we have no jurisdiction whatever over the point where the greatest contamination takes place — the home. We can regulate the source of supply, the preparation or manufacture, and the handling up to the point of entering the home — there our authority stops."

"Education is our only instrument for the prevention of contamination and the development of bacteria in harmful quantity, and even deadly toxins after a food product leaves the last commercial handler. While no other means is desired, I consider it my duty to teach the general public as far as possible that refrigeration is the best known method of preserving food in the home."

"Food, along with most every other phase of life, has been af-

ected by our present state of living, compared with the past. Early man grabbed his food fresh and ate it immediately. There was no danger of contamination through handling or chance for the development of bacteria through holding in high temperature."

"Today there is little chance of unsafe food being sold with our methods of testing and supervising distribution, until after it is sold. We see that it is not diseased to begin with. We guard against employee or animal, or vermin contamination. Length of time and temperature at which it is held are regulated."

"And while most foods contain some bacteria to begin with it is of a negligible quantity until subjected to the dangerous elements of time and high temperature. That is why I say it is most important to preserve all perishable foods through refrigeration, at a temperature of 45° to 50° as a general rule."

TO BROADCAST FOOD PRESERVATION DRIVE

(Concluded from Page 1, Column 3)

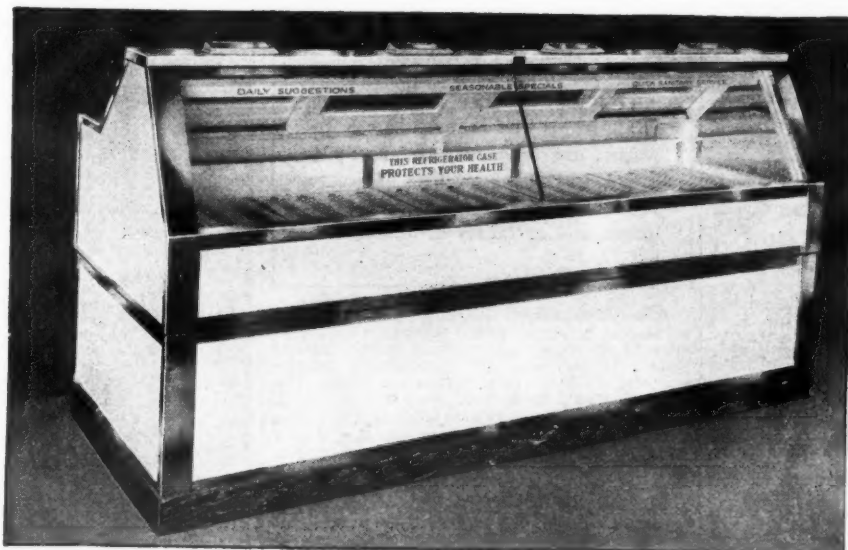
Louis is getting under way; and tie-up materials have been ordered and budgets set up for Kansas City, Mo., Lincoln, and Mason City, Ia.

District 13, under the leadership of P. E. McChesney, is proving very successful in organization work. Texas is well under way; and now Shreveport and Baton Rouge, in Louisiana, are organized, and organization work has been started in New Orleans.

Some of the city chairmen in the Texas-Louisiana district, include R. E. Hendricks and J. E. Bryan, associated in Ft. Worth; W. J. Aicklen, Jr., Houston; Dave Moore, Galveston; R. E. Shively, San Antonio; J. P. Boyden, El Paso; D. W. Reeves, Lake Charles, La.; P. P. Newman, Baton Rouge; J. F. Jakowitz, Port Arthur; K. E. Sutton, Beaumont. In addition, Milt Saul, temporarily acting as head of Dallas Council, may be made permanent chairman there; Guy Richardson, of the Texas Power and Light Co., is acting as chairman for the whole territory served by that utility, and C. O. Dunton, commercial manager of the Central and Southwest Utilities Co. is assuming the responsibility for organizing the localities in which that firm has properties. Co-operation of ice manufacturers in all Texas local activities has been very generous in support. One Texas health commissioner whose name has not been released for publication is so enthusiastic about the Program that he has offered one month's salary to the Council formed in his city to increase activities.

Now...

Food is sold from modern Monel Metal trimmed refrigerators



Monel Metal trimmed "Oreole" Display Case mfd. by the OTTEN-HEIMER BROS. INC. of Baltimore, Maryland.

THE food store of today is a miracle of cleanliness compared with the cracker-barrel emporium of yesterday. The refrigerators particularly are "dressed-up" and appealing with their immaculate Monel Metal trim.

Monel Metal is the most popular of all materials available for display case trim. It is clean-looking, silvery and attractive in every way.

Monel Metal will not rust. It resists corrosion. It has no surface coating to chip, crack or wear off. Naturally, it is easy to clean and keep clean. It is economical because it saves cleaning labor and lasts longer.

Refrigerator manufacturers who use Monel Metal trim have a talking point that carries weight with refrigerator buyers. "Quality trim denotes quality throughout"—and Monel Metal is quality trim.

NATIONAL ADVERTISING

Monel Metal is regularly advertised reaches your customers and educates them on the value of Monel Metal. Are you "cashing in" on business papers. This advertising

reaches your customers and educates them on the value of Monel Metal. Are you "cashing in" on business papers. This advertising

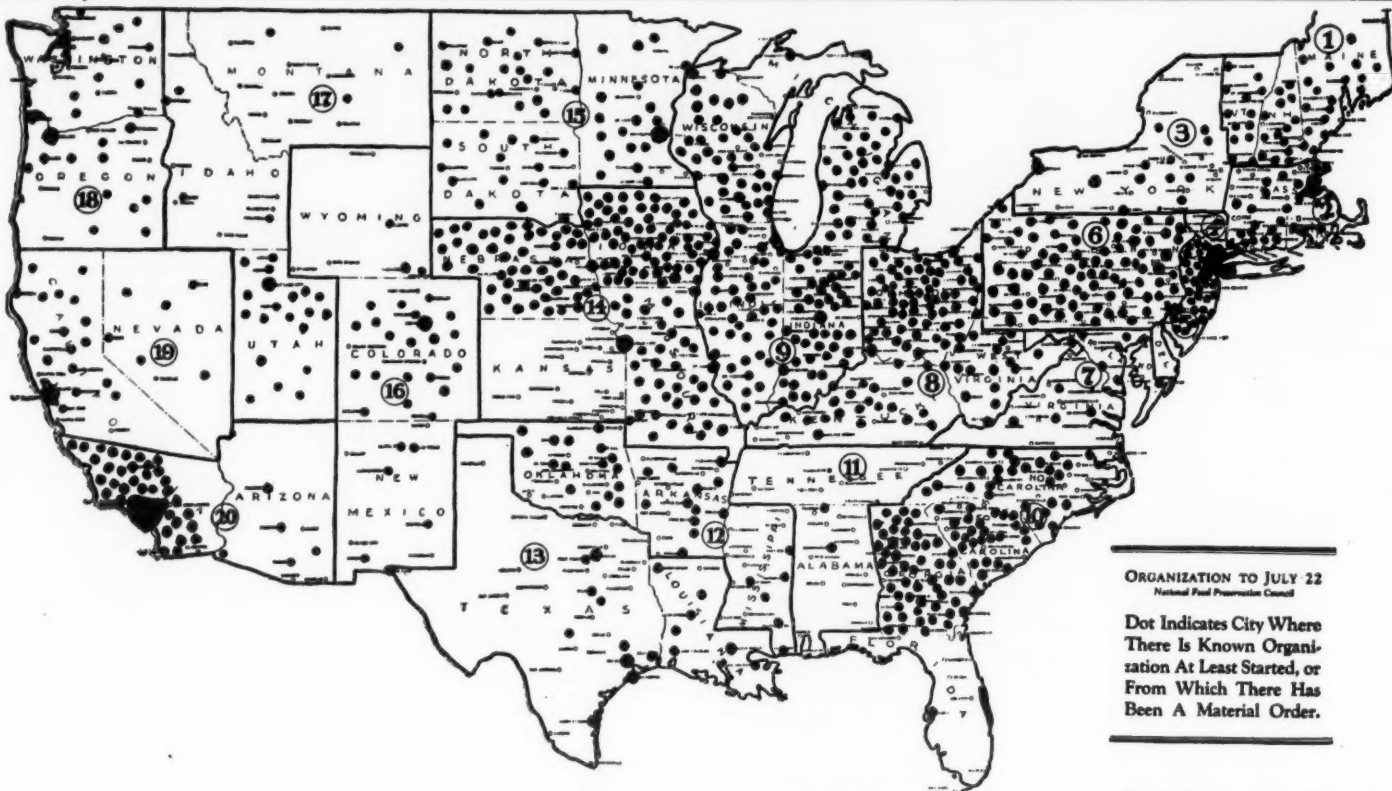
MONEL METAL

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

Monel Metal is a technically controlled Nickel-Copper alloy of high Nickel content. It is mined, smelted, refined, rolled and marketed solely by The International Nickel Company, Inc. The name "Monel Metal" is a registered trade mark.



Cities Organized for Food Preservation Campaign



ORGANIZATION TO JULY 22
National Food Preservation Council

Dot Indicates City Where
There Is Known Organi-
zation At Least Started, or
From Which There Has
Been A Material Order.

CRERAR LIBRARY HAS MANY REFERENCES ON FOOD PROTECTION

THE John Crerar Library at Chicago, famed as one of the greatest technical libraries in the nation, possesses the following books on food poisoning, protection and preservation, especially in the field of refrigeration:

Appert, Nicholas. "The Art of Preserving Animal and Vegetable Substances for Many Years." Translated from an early Nineteenth century manuscript by K. G. Bitting, Chicago, 1920. John Crerar Library No. 641.48 H001.

Bercaw, Louise Oldham. "Refrigeration and Cold Storage." A compilation of references. Government Printing Office, Washington, 1925.

Bowen, John T. "The Application of Refrigeration to the Handling of Milk." Government Printing Office, Washington. John Crerar Library No. 630.5 UA20 v. 98.

Burrows, George M. "An Account of Two Cases of Death from Eating Mussels; with Some General Observations on Fish Poison." London, 1815. John Crerar Library No. 615.94 H500.

Cooper, Madison. "Eggs in Cold Storage." H. S. Rich & Co., Chicago, 1889. John Crerar Library No. 664.9 P900.

Cooper, Madison. "Practical Cold Storage." Nickerson & Collins, Chicago, 1914. John Crerar Library No. 621.5 R403.

Damon, Samuel Reed. "Food Infections and Food Intoxications." Williams and Wilkins Co., Baltimore, 1928. John Crerar Library No. 617.97 S800.

Ewart, J. C. "Preservation of Fish." C. Griffin & Co., London, 1887. John Crerar Library No. 664.9 Onr.

Gamble, Frederick. "Observations on the Preservation of Animal and Vegetable Substances." Milliken & Son, Dublin; Longman & Co., London, 1839. John Crerar Library No. 664.9 J900.

Harrison, Francis Charles. "The Bacteriology of Certain Sea Fish." Privy Council of Scientific and Industrial Research, Ottawa, 1926. John Crerar Library No. 1607.114 2v. 19.

Hoagland, Ralph. "Changes in Fresh Beef During Cold Storage." Government Printing Office, Washington, 1917. John Crerar Library No. 614.319 R700.

House Committee on Agriculture. Hearings. "Cold Storage." Government Printing Office, Washington, 1921. John Crerar Library No. 614.31 S100.

International Congress of Refrigeration. Proceedings of First Congress, Paris, 1908. John Crerar Library No. 621.06 Q8021. Proceedings of Second Congress (Vienna, 1910). John Crerar Library No. L621.06 R001. Proceedings of Third Congress (Chicago, 1913). John Crerar Library No. 621.06 R302. Proceedings of Fourth Congress (London, 1925). John Crerar Library No. 621.06 S401.

Jordan, Edwin O. "Food Poisoning." University of Chicago Press, Chicago, 1917. John Crerar Library No. 616.97 R700.

Pennsylvania Committee on Storage. "Potato Storage Investigations." Marble Laboratory, 1925.

Rector, Thomas. "Scientific Preservation of Food." J. Wiley & Sons, Inc., New York, 1925. John Crerar Library No. 664.8 S500.

The map above shows the status of organization work on the National Food Preservation Program during the last week in July. Dots show the cities in which active work has been initiated, councils completely organized, or tie-up materials requisitioned, as reported to National Headquarters at that time. Indications at present point to local participation in the Program by organizations in more than a thousand cities and towns.

PACKAGED MEAT

UTILIZING a new quick-freezing process, Swift & Co., Chicago packers, are now marketing fresh meats in packages. Until the invention of this quick-freezing process, only cured meats such as ham and bacon could be sold in package form.

Among the meats now sold with a Swift trade-mark branded on them are lamb chops, pork chops, pork tenderloin, sliced calf liver, sliced beef liver, and legs and shoulders of lamb. In the near future the Swift line will include beef steaks, roasts, and chopped-up lamb for lamb stew.

The meats thus packaged are wrapped in parchment or cellophane, are trimmed, and ready to cook. For this new line of frozen products Swift & Co. claim cleanliness, and certainty of quality and cut.

Rice, Katherine. Bibliography on "Preservation of Fruit and Vegetables in Transit and Storage," with annotations. United States Department of Agriculture, Washington, 1922. John Crerar Library No. L016.63 U5812 v. 4.

Richardson, W. D. "Deterioration and Commercial Preservation of Flesh Foods." Chicago, 1908. John Crerar Library No. 664.9 Q801.

Savage, William G. Report to Local Government Board Based on Bacterial Food Poisoning and Infections. H. M. Stationery Office, London, 1913. John Crerar Library No. 614.0942 26a. S. O. 77.

Savage, William G. "Food Poisoning and Food Infections." University Press, Cambridge, 1920. John Crerar Library No. 616.97 S001.

Savage, William G. "Food Poisoning: A Study of 100 Recent Outbreaks." H. M. Stationery Office, London, 1925. John Crerar Library No. 614.052 G79 v. 92.

Senate Committee on Manufacturers. Hearings. "Foods Held in Cold Storage." Government Printing Office, Washington, 1911. John Crerar Library No. 614.31 R101.

Taylor, Harden F. "Refrigeration of Fish." Government Printing Office, Washington, 1927. John Crerar Library No. 639.2 O973.

Thom, Charles. "Hygienic Fundamentals of Food Handling." Williams & Wilkins, Baltimore, 1924. John Crerar Library No. 614.3 S400.

Dukes, Cuthbert. "The Bacteriology of Food." H. K. Lewis & Co., London, 1925. John Crerar Library No. 607.114 2v. 19.

E. T. L. Service for Domestic and Commercial Electric Refrigeration

Testing and experimental laboratory service for Manufacturer, Distributor, Central Station
Test data exclusive property of client
ELECTRICAL TESTING LABORATORIES
80th Street and East End Avenue, NEW YORK CITY, N. Y.

Wirfs PATENTED "AIRTITE" GASKET

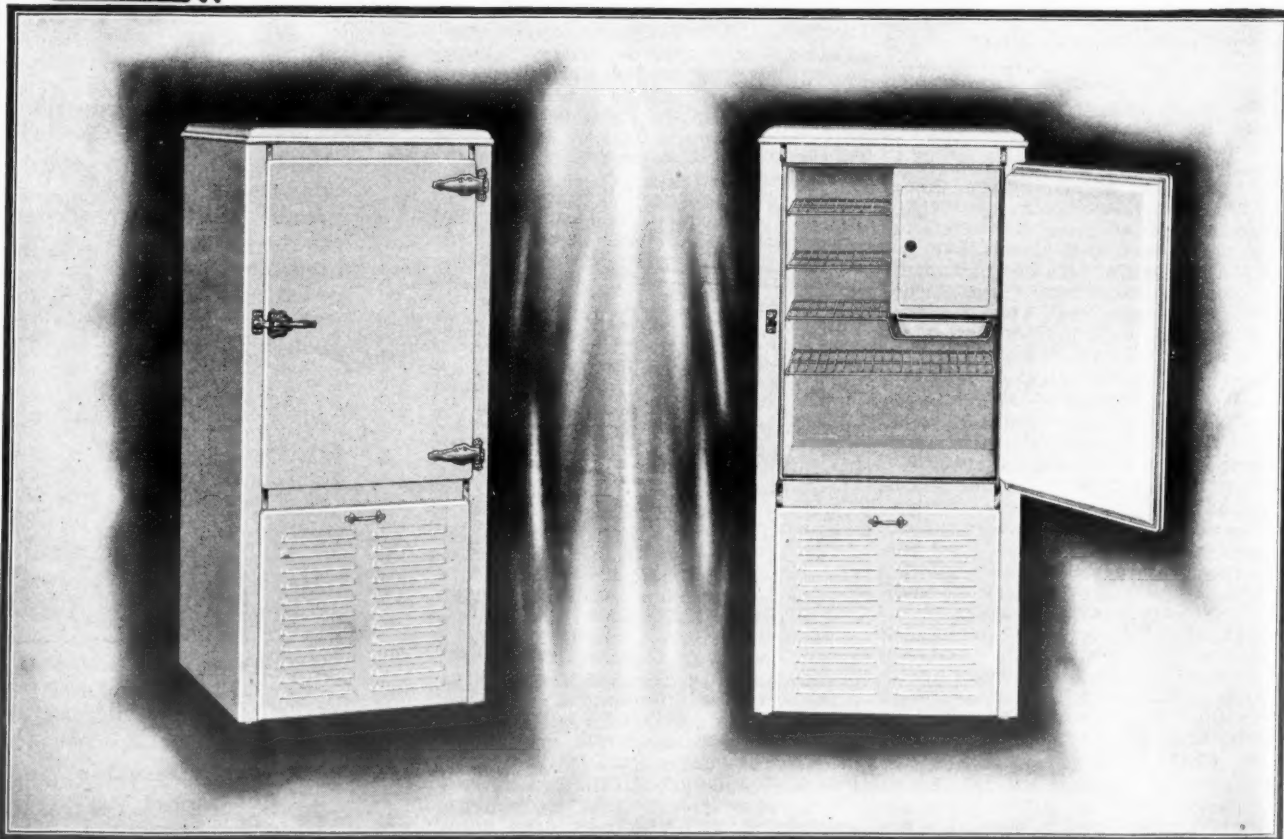


assures Electrical Refrigeration Efficiency

An electrical unit can only be as efficient as the box in which it is installed. Poor door contacts on wood or metal boxes hinders its efficiency and increases operating costs.

WIRFS CORPORATION
135 S. 17th St. St. Louis, Mo.

ANOTHER REX TRIUMPH



A New All Porcelain Rex Cabinet

In answer to a growing demand from our customers Rex now offers a one door all porcelain cabinet of five cubic feet net capacity at a very attractive price. Besides the porcelain finish, this model, which is known as the Rex P50, has full crown top, deluxe hardware, and other new features. Quantity production of this new model has enabled us to make the price surprisingly low. Wire or write for full specifications and net prices.

REX MANUFACTURING CO.
CONNERSVILLE, INDIANA

EXTRA DRY ESOTOO

THE PUREST

SULPHUR DIOXIDE

Analysis Guaranteed.

WE HAVE AN AGENT WITH OUR PRODUCT IN STOCK NEAR YOU - WIRE US WHERE WE CAN SERVE YOU

VIRGINIA-SMELTING CO. West Norfolk, Va.

P. A. EUSTIS, Sec. - 131 State St. BOSTON - 2 Rector St. NEW YORK

Your copy of the new leaflet illustrating and describing this new model is now ready for mailing. May we send it?



METROPOLITAN NEW YORK "GOING ELECTROLUX." Photograph shows shipment of Electrolux refrigerators being delivered to new modern apartment. Dozens of scenes like this are taking place in New York City every month as sales continue to jump ahead.

The swing to ELECTROLUX *gathers force*

LIKE a giant snowball rolling down hill, the countrywide swing to Electrolux goes faster and faster. Seventy-seven of the finest new high class apartment buildings erected in Metropolitan New York in April and May were completely equipped with Electrolux—5,535 refrigerators.

Within the past nine months, 231 new apartment buildings in New York have been equipped with Electrolux—a total of 17,077 refrigerators to these buildings alone.

Stop and think a minute what that means. You know what sales managers say when they talk about breaking into the New York market with a new product. Tough? It's the toughest market in the world. Yet within the past 24 months nearly 25,000 Electrolux Refrigerators have been sold there.

That's the story of New York. The same thing is happening in other cities. Philadelphia's new skyscraper apartment building, Chancellor Hall, is Electrolux-equipped. So is the 381-apartment Chatwick Gardens, at Forest Hills, Long Island.



In St. Louis, the new 96-family apartment dwelling at the corner of Bingham and Grand Avenues is completely equipped with Electrolux, the finest modern refrigerator. In Chicago, in Washington, in New Orleans, in Los Angeles, the trend is toward Electrolux.

This nation-wide swing to Electrolux points to one conclusive fact . . . bigger sales for every Electrolux dealer. So far, sales for the first six months of 1929 have been two and a half times greater than the same period in 1928. There is every reason to believe that they will increase still higher before the year is over.

The swing to Electrolux is on all over the nation . . . right in your own territory.

Turn prospects into customers by keeping in constant touch with them, particularly your contacts in the building field.

Get your share of the growing increase in Electrolux business, and succeed with Electrolux. Servel Sales, Inc., Evansville, Indiana.

ELECTROLUX
THE GAS REFRIGERATOR
MADE BY **SERVEL**

Chicago Councilmen Vote For Boiler Department Ordinance

Sub-Committee Concludes Refrigeration Hearings

CONCLUDING its month-long period of hearings on the subject of a new refrigeration ordinance for the City of Chicago, the sub-committee of the Health Committee of the City Council met Friday, August 2, in the Council chambers, and voted, three to one, to recommend to the Health Committee the proposed ordinance submitted by Gerald F. Gearon, of the Boiler Inspection Department. The Gearon ordinance approves and provides for multiple systems.

Alderman Eaton, chairman of the sub-committee, voted for the ordinance submitted by the Health Department. Aldermen Sloan, Taylor, and Ross voted "aye" on the Gearon ordinance. The chairman announced that he would present a minority report to the Health Committee favoring Health Commissioner Kegel's code.

In comparison with previous turbulent sessions of the subcommittee, this hearing was quite orderly. Little new evidence was introduced, and all of the Aldermen appeared to have had their opinions on the matter firmly established. Testimony from the Fire Prevention Bureau and from Detroit officials who had helped formulate that city's code provided the only new material presented.

Mr. Gearon of the Boiler Inspection Department was placed upon the stand at the opening of the hearing to answer any questions that might be asked about his ordinance. Under examination he estimated that 10,000 multiple systems had been installed and inspected in Chicago, and that probably 8,000 more "boot-leg" multiples had been installed there without inspection.

Gearon Testifies

It was further testified by Mr. Gearon that in each case of death attributed to a leaky multiple system, the installation held to be at fault had not been inspected, nor had a permit for it been obtained. Mr. Gearon claimed that his department had been unable to make full investigations of all the accidents, because in each instance, "by the time we got there the machine had been removed for examination and there was no gas in the system when we looked it over."

After the Health Department had waived a chance to make counter-suggestions, Chairman Eaton spied Chief Egan of the Fire Prevention Department, and called on him for a statement. Chief Egan bowed to Mr. Hogan-

son of the same department, who said: "The point under consideration in our bureau is with reference to the dangers of these gases going through the building and the hazard to firemen working at a fire. I believe it is the aim of our department, as these gases are of such a nature that they may intimidate or rather hazard the lives of the firemen, that our department would consider that the multiple systems may be objectionable. Now, our department may not be in a position possibly to understand just exactly what the dangers may be, but at the same time we have had some experiences in the Fire Department where there has been loss of lives in ammonia systems."

A second request by the Chairman that Chief Egan make a statement elicited the following:

Chief Egan Speaks

"For more than thirty years I have been fighting fires in this district. Some years ago a meat market down on Clark street near Harrison had a fire. They had one of the ammonia cooling plants installed. The ammonia caused about ten firemen to collapse. The rupture and collapse of all the pipes was so sudden that the firemen were overcome and were rescued by other firemen.

"Hotels and other places have these cooler compressors on the roof. We find that during a fire where the structural work gives way and there is any pipe system, even with ammonia, it is very dangerous and suffocates the firemen and knocks them out.

"As to the methyl chloride gas, if it is as dangerous as our Health Department tells us it is, it is going to be a difficult matter for firemen at fires where there is 100 pounds or more of this stuff. I assure you this system will be a hazard to the firemen's lives."

Quickly gaining recognition from the chair, Mr. Gearon arose to answer Chief Egan's remarks, and the following dialogue ensued:

Mr. Gearon: "In accordance with that, I would like to call attention to the fire prevention clauses in the ordinance as drafted by this department.

We took into consideration the very facts he is talking about. We have had similar experiences and in the particular case of the meat market—that accident brought up the installation of a safety device to relieve that condition. That is, a safety valve, shell-type apparatus, so that in case of anything unusual like a fire occurring, such a safeguard would relieve the pressure and the apparatus would not break.

"For the protection of the Fire Prevention Bureau, we have specified that there shall be a line and valve at a location practically on the outside or accessible from the outside, so that in case of fire the firemen can go in and release the refrigerant from the system.

Fire Protection

"As far as the multiple systems are concerned, I was going to ask Mr. Hogan-son that if they are installed in accordance with the code of the National Board of Fire Underwriters, then would he consider the danger was to a great extent eliminated?"

Mr. Hogan-son: "I don't say that. It doesn't take into consideration the hazard of life at all."

Chief Egan: "I might state that in connection with it, that the Monarch Cold Storage on Austin avenue had a fire in the plant. We were told that all fumes had been released to the air and 15 minutes afterward there were 40 firemen taken to the hospital; and they were there for a period of 24 hours to three months because of the rupture of the ammonia connections on the roof of the building."

Mr. Gearon: "But, Chief, that was rather the result of faulty operation or faulty installation, the failure of the valve to release the fumes. There is no doubt that accidents will happen under any circumstances. If you have any kind of gas piped through the building the fire hazard is the same and you would have to eliminate all gases as well as one."

Followed then a detailed discussion of the comparative toxic qualities of sulphur dioxide, methyl chloride, carbon monoxide, and illuminating gas. Many diverse opinions were ushered into the discussion, but no conclusions were reached.

Detroit Officials Present

Messrs. J. M. Bishoff, Commissioner of Safety and Engineering in Detroit, and H. H. Mills, Chief Safety Engineer of the same city, were introduced, and answered questions regarding the refrigeration ordinance now in force in that city.

Nobody else offering any remarks on the subject, Chairman Eaton called for a vote of the subcommittee on the two ordinances, explaining that "the final draft of the Health Department embraces Mr. Gearon's suggestions as to all units except the household unit, and the fire prevention suggestions; but it eliminates multiple systems. Mr. Gearon's ordinance incorporates the fire prevention clauses and the electrical suggestions, but permits multiple systems in homes up to 100 pounds and in certain other cases up to 300 pounds."

In turn each Alderman arose and voted "Aye" on the Boiler Inspection Department's ordinance, until Chairman Eaton ended the voting by registering a "No."

REFRIGERATION RUBBER WARE

Specializing in the development and manufacture of hard and soft rubber parts for electric refrigeration.

THE AETNA RUBBER CO.
ASHTABULA, OHIO

ROCHESTER UTILITY SELLS 945 UNITS IN CAMPAIGN

The Rochester Gas & Electric Corp., Rochester, N. Y., reports the sale of 945 mechanical refrigerators during an eight weeks campaign held in May and June. Of the total number of machines sold, 757 were General Electric refrigerators, while the balance were Servel and Electrolux refrigerators.

During the campaign a total of 246,000 direct mail advertising pieces was sent to customers, including a list of 35,000 prospects. Employees participated by acting as regular salesmen, while others turned in names of prospects to salesmen. The Wheeler Refrigerator Corp., General Electric distributors in Rochester, co-operated and offered assistance in the campaign. On July 10, the company feted 125 regular salesmen at the Oak Hill Country club. A number of officials from the electric refrigeration department of the General Electric Co., Cleveland, attended this banquet.

A. K. BAYLOR, GENERAL ELECTRIC COMMERCIAL ENGINEER, DIES

Armistead K. Baylor, General Electric commercial engineer and veteran of the electrical industry died on August 1 at Ipswich Mass. Refrigeration men will remember Mr. Baylor as the representative of the General Electric Co. at meetings of the old Refrigeration Council in 1925 and 1926.

Mr. Baylor was vice-president, director and member of the Executive Committee of the Edison Electric Appliance Co. In addition he served on the directorate of the Electric Vacuum Cleaner Co. and the Contract Purchase Corp. He was a member of the American Institute of Electrical Engineers and of the Institute of Electrical Engineers (Great Britain).

Wayne

Electric Refrigerator



Every Day—

Thousands of men and women are going into stores like your own to see what's new in Electric Refrigerators! And many of them are asking about the new Wayne ... with its Automatic Cold Control!

If you are interested in this Wayne Feature ... and the profitable Wayne Franchise ... Write Us.

WAYNE HOME EQUIPMENT CO.
Main Office and Factory, Fort Wayne, Ind.

Balsam-Wool Sealed Slabs



"Better than any used in the past—"

A Northwest Quality Product

FRIGID ZONE MANUFACTURING CO., INC.

HOUSEHOLD AND COMMERCIAL REFRIGERATION

NEW LOCATION:
2909 THIRD AVE. PHONE SEMEKA 0850

Wood Conversion Company
Cloquet
Minnesota

Gentlemen:

Seattle, Washington
July 23, 1929

Attention of Mr. E. W. Davis

In answer to your inquiry of July 20 please be advised that our shipment of Balsam-Wool Sealed Slabs is very satisfactory and specifications for a larger shipment are now being made up.

Under working conditions we find Balsam-Wool Sealed Slabs to be a better insulator for our work than any insulation material used by us in the past.

Due to the fact that it is put up in moisture proof sealed packages in sizes to fit our cabinets it has eliminated the hazards of improper sealing of the insulating material at the time it is assembled in the cabinets. Prior to the time we started to manufacture our own cabinets we purchased cabinets from a number of firms and one of the greatest faults of these cabinets was the improper sealing of the insulating material, which caused excessive operation of the refrigeration equipment, and as there is no need for cutting and fitting Balsam-Wool Sealed Slabs we are realizing a larger saving in labor than anticipated.

We feel that Balsam-Wool Sealed Slabs are a valuable contribution for use in electrical refrigerator cabinets, and wish you a world of success in marketing it so that we may be assured of a continual supply.

Yours very truly,

FRIGID ZONE MFG. CO., INC.

Earle R. Mandle

Earle R. Mandle

WOOD CONVERSION COMPANY

Insulation Division of Weyerhaeuser Forest Products • Mills at Cloquet, Minnesota

Industrial Sales Offices: 360 N. Michigan Avenue, Chicago

3107 Chanin Bldg., New York

938 National Press Bldg., Washington, D. C.

3084 West Grand Blvd., Detroit, Michigan

Manufacturers of Balsam-Wool Insulation for Domestic Refrigerators, Motor Buses and Airplanes; Balsam-Wool Refrigerator Car Insulation and Steel Car Insulation; Balsam-Wool Standard Building Insulation

Every Cylinder Analyzed

SULPHUR DIOXIDE

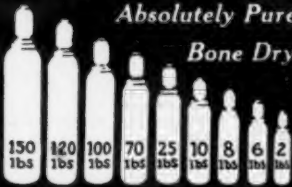
Absolutely Pure
Bone Dry

for DIRECT CHARGING

also Ton Drums
Tank Cars

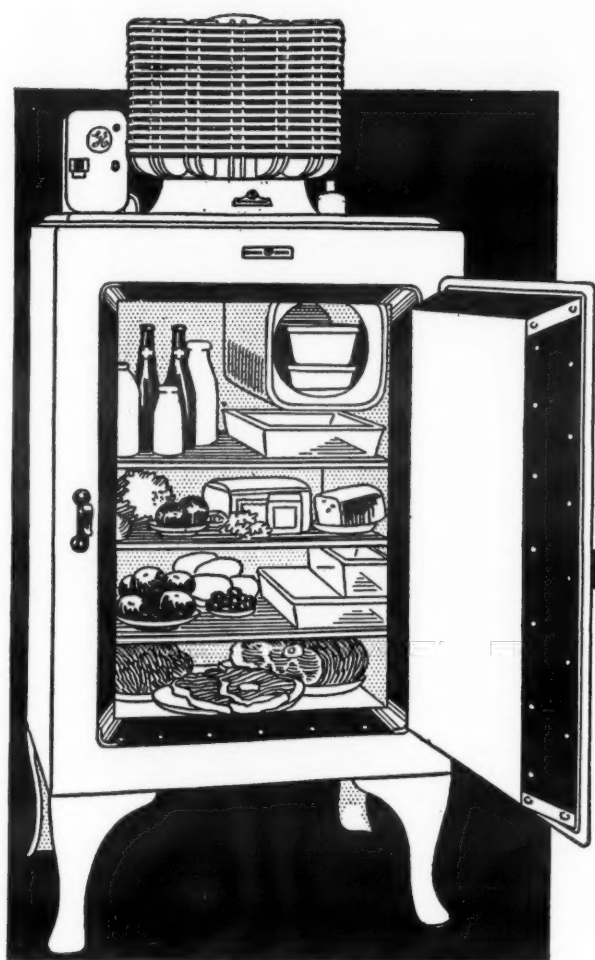
ANSUL CHEMICAL COMPANY

MARINETTE WISCONSIN



**More than 300,000 owners
and not one has spent a single dollar
for repairs or service!**

APPRECIATION *and* ENDORSEMENT



Practical Advantages for Users:

- ... an hermetically sealed, dust-proof mechanism
- ... a simple freezing regulator
- ... entire mechanism mounted on top—that is quiet and requires no oiling
- ... a sanitary, porcelain chilling chamber.
- ... maximum food storage space in the cabinet
- ... an all-steel, warp-proof cabinet
- ... mounted on legs with broom-room underneath
- ... absolutely no radio interference
- ... no installation costs
- ... an unqualified two-year guarantee

More than 300,000 people have endorsed the General Electric Refrigerator by buying one.

They saw it—and *liked* it for its attractiveness, its simplicity. They *believed* in it—one demonstration was enough to convince them that it could do all that was claimed for it, and could keep on doing it.

They *wanted* it—because of its outstanding advantages listed below. They *bought* it—the concrete proof of their endorsement.

And they bought to such an extent that the sales in two years of General Electric Refrigerators established a new and dramatic merchandising record.

Their endorsement has been justified. Their confidence has not been misplaced. Their satisfaction has been unbounded.

The wide-spread, hearty endorsement of present users is bringing in new customers daily.

And the General Electric All-Steel Refrigerator again comes to the fore in the nation-wide program designed to impress upon the home makers of America the necessity for keeping perishable foods always under the safety point of 50 degrees.

That fundamental requirement is met by the General Electric All-Steel Refrigerator which has the features and the ability to insure for the homes of America the steady maintenance of a temperature *well below* 50 degrees.

It has been specially designed to do that and hence it is one of the greatest helps to a worthy end: the preservation of health through scientific refrigeration.

*We endorse the National Food Preservation Program
50° is the safety point for perishable foods.*

GENERAL ELECTRIC

ALL-STEEL REFRIGERATOR

Every General Electric Refrigerator is Hermetically Sealed

8,000 Drawn to Elaborate Show Staged by Buffalo Utility in Cooperation With Distributors

Six Makes Given Equal Display Space; Utility Stands All Costs; English Garden Setting Lends Artistic Touch

By John Winters Fleming.

THE Buffalo, Niagara & Eastern Power Corporation, one of the chief figures in the recent \$600,000,000 New York State electric power merger, conceived, created, and sponsored financially, and in other ways, Buffalo's first electric refrigeration show which took place from July 15 through July 27, on the street-level floor of the Electric Tower in Buffalo.

The power corporation, which serves sections of Central and Western New York State with electric energy, instituted the electric refrigeration show for three purposes:

First and foremost, to focus public attention on the merits of electric refrigeration;

Second and perhaps most important in the present super-heated state of relations, or lack of them, between many manufacturers of electric refrigeration and the electric power public utilities, to

utilizing electric refrigeration in the making, and then served, gratuitously, to all desiring them.

At the other end of the display floor there was a quaint and charming gate and garden wall forming the entrance to the show.

The women who make up the power corporation's Home Service Bureau Staff were in constant attendance at the show to make and serve the cooling drinks and refreshments and also to answer questions that might be asked. But, these

sour is entirely erroneous. The questioner was further informed that the old idea probably originated because of the fact that the heat and humidity that usually precedes a thunderstorm turned the cream sour and the thunder received the blame. Then the questioner was told that cream and all foodstuffs kept below 50 degrees are safe. In this subtle fashion was the subject of electric refrigeration introduced and explained along with an interesting talk on food preservation, its cash value and health dividends.

About 3,000 persons attended the show the first week. The power corporation didn't think that this was sufficient turn-out. Thus, to stimulate attendance at the show, the corporation conducted a contest among those in attendance at the show.

As each person entered the show he or she was given a ticket, free, and asked to write his name and address on one end of the ticket. When the person handed the ticket back the stub was torn off and given to the person. This stub bore a number and represented the attendant's chance on a \$195 electric refrigerator awarded as an attendant's prize.

In this way of course a mailing list was built up, in addition to stimulating interest in and attendance at the show. The second week the attendance jumped to approximately 5,000 persons, a total of 8,000 in all at the show.

One of the dealers stated that he sold 22 refrigerators while the show was on, fifty per cent of which he sold from the floor. Forty per cent of those he sold from the floor were "cold turkey" sales made to people previously unsolicited; people who just walked into the show and remained to be sold.

However, regardless of the number of sales made or missed, no comment about the show would be complete or fair without a word of much-merited tribute to the power corporation for its initiative, and perhaps even more for its generous and genuine gesture of goodwill to the manufacturers, in starting and sponsoring the exhibition.

CITIES SERVICE REPORTS 5,413 UNITS SOLD DURING FIRST 6 MONTHS OF '29

Reports from the electric utility properties of the Cities Service Co., New York, N. Y., for the first six months show sales of 5,413 domestic and commercial types of electric refrigerators. These sales are larger than sales of the same period last year by 55 per cent. The annual current consumption from the 1929 sales is expected to be increased 3,250,000 kilowatt hours.

GEORGIA FIRMS REPORT GOOD SALES DURING JULY

While general business conditions in the Atlanta and adjacent Georgia territory have been on a downward trend for the past three or four weeks with very few lines showing any gain in sales volume over the corresponding period last season, the various factory branches and distributors in Atlanta handling electric refrigerators stated in interviews during the first week of August that this business is unusually good in the Atlanta territory, and without exception reported fairly substantial gains in sales volume over last summer for the same period. Furthermore, it was also stated that the August outlook is promising and that sales will undoubtedly exceed the August of 1928.

The Frigidaire branch at 252 Peachtree St., N. E., Atlanta, did a much better business in July, 1929, than July, 1928, and to date this year has found 1929 its largest year. The Kelvinator Sales Corp., 492 Peachtree St., also did a much better July business than last season, while the King Hardware Co., which recently took on the Kelvinator line, reports sales unusually active. The Alexander-Seewald Co., distributors for

the General Electric, and the Georgia Power Co., retail G. E. dealers, both stated sales were exceptionally brisk, and the late summer and early fall outlook much more promising than last year. July sales of the power company were considerably larger than last year, but because of an extensive sales campaign which was in progress during June they were not as large as for that month. The sales outlook in rural Georgia communities is exceptionally promising, power company officials say, due to the large crops raised in Georgia this year and the excellent crop prices prevailing.

R. B. ALLING CO. ANNOUNCES TWO STAFF APPOINTMENTS

R. B. Alling Co., Detroit Copeland distributors announce the appointment of D. W. Dunning as industrial sales manager. Mr. Dunning has been with the Alling company for about six months and was formerly with Faust-Kennedy-Potter, Frigidaire agents in Lansing, Mich.

H. A. Parsons has been appointed commercial sales supervisor. Mr. Parsons has been with the Alling Co. for the past year having formerly been with the Dalrymple Kelvinator Co., Detroit Kelvinator distributors.

N. E. L. A. Reports On Developing Farm Electric Service

The Rural Electric Service Committee of the National Electric Light Association made a serial report in July on "Developing Electric Service for the Farm." This report covers the organizations and methods used by the Alabama Power Co.

Your Paper Very Valuable

"I consider your paper very valuable to anyone engaged in the electric refrigeration business."—A. J. Horn, Berkeley, Calif.



"A Real Honest to Goodness Garden Fountain Spouted Cooling Water"

co-operate as an electric utility company with distributors whose refrigerators the corporation does not handle and to let these distributors display and sell their wares at the show right on the company's sales floor;

Lastly, to increase the domestic power load of the power corporation.

Every local distributor of electric refrigeration in Buffalo was invited to participate, free of all cost to the distributors and all were given equal window and floor display space.

The following makes of electric refrigeration were exhibited: General Electric, Frigidaire, Welsbach, Copeland, Kelvinator, and Universal.

The main, street-level floor of the Electric Tower was transformed into an English garden scene for the occasion. Overhead green-beaded electric lanterns glowed; underfoot soft green-grass mats offered yielding, comfortable footing; all around were tea tables and chairs. A real, honest-to-goodness garden fountain spouted cooling water which was particularly appropriate at an electric refrigeration show held during an intense heat wave. Then, of course there was a sun dial, without which no garden scene seems complete. Pine trees added to the completely natural setting and to the atmosphere of green-hued coolness.

At one end of the display floor there was a completely-equipped, one-story, model electrical kitchen within which, and before the very eyes of those attending the show, iced refreshments and frozen desserts were made, of course

Home Service Bureau Staff girls were forbidden to mention by name any specific line or lines of electric refrigeration.

Each distributor was allowed to make sales from the floor. The power corporation had printed at their expense name and price placards to identify the maker and to give the cost of the various models. These placards were the only posters allowed on the floor. Advertising placards were taboo.

The various exhibitors' spaces were marked off by box hedges and thus carried out to a nicety and to completeness the garden scene.

The show was open daily from nine each morning until ten at night and admission was free. Two display windows were exclusively devoted to electric refrigerators, each of the six exhibitors being allowed to show one of his small models in the window. Each exhibitor was allowed to display four refrigerators on the floor.

Extensive newspaper advertising of an educational and highly attractive nature, the work of the corporation's advertising agency, augmented the window display as magnets to attract the public's eye to the show.

One striking window display idea merits mention. A large placard in one of the windows asked the question: "Does Thunder Turn Cream Sour? Ask Inside At Buffalo's First Electric Refrigeration Show. Admission Free."

When the curious-minded observer stepped inside he, or she, was informed that the idea that thunder turns cream

"You can depend upon the Insulation-It's Armstrong's Corkboard"

In a mechanically cooled refrigerator, much depends on the insulation. If it is Armstrong's Corkboard, you can be certain of the maximum protection from outside heat, which means a lighter load on the machine and lower operating cost to maintain uniform temperature.

You can depend upon Armstrong's Corkboard to stay dry and free from rot, mold, and

odor. Armstrong's Corkboard is nonabsorbent and is not subject to any deterioration whatever under normal service conditions.

You can depend on the stability of Armstrong's Corkboard. It will not shrink or swell. It will not disintegrate, settle, or sift out at the joints.

In a word, you can depend

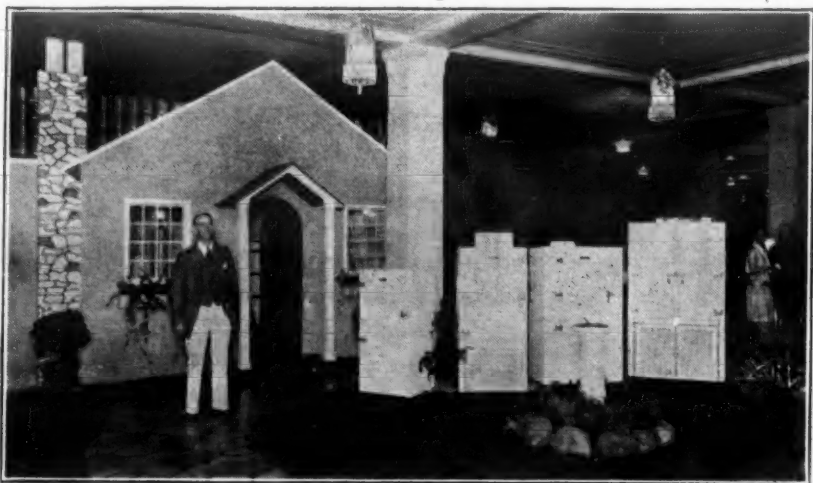


TRADE MARK
REG. U. S. PAT. OFF.

upon Armstrong's Corkboard to last as long as the cabinet and keep in exactly the same condition as when first installed.

The strongest sales argument you can use is the statement: "This cabinet is insulated with Armstrong's Corkboard."

Samples and full information on request. Armstrong Cork & Insulation Company, 917 Concord Street, Lancaster, Pa.



Model Kitchen in Which Frozen Desserts Were Made and Served to Guests

Armstrong's Corkboard Insulation

Food Merchants

Choose McCray Equipment

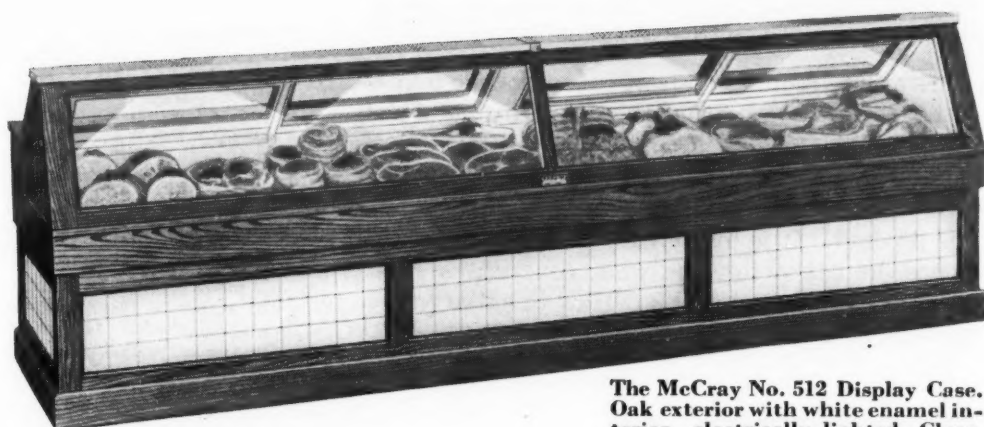
For Bigger Profits



The McCray No. 185 Cooler. This model is especially well suited for the merchant who needs ample storage facilities.



The McCray No. 105 Display Case. Gleaming white porcelain exterior with monel metal trim makes this case the finest in display equipment.



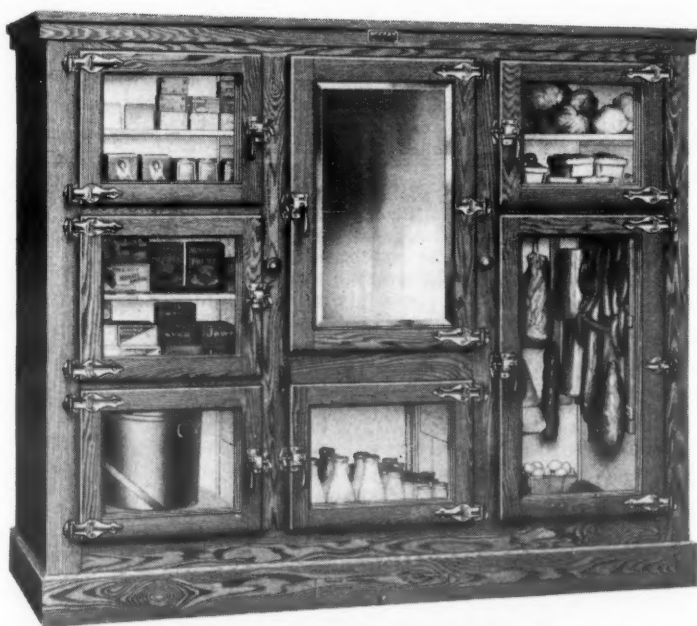
The McCray No. 512 Display Case. Oak exterior with white enamel interior, electrically lighted. Clear, unobstructed display enhanced by end mirrors inside.

KNOWING that the name McCray means more satisfied customers and lower operating costs, food merchants choose McCray equipment for bigger profits.

For with McCray refrigerators, coolers, refrigerator counters and chests, spoilage losses are eliminated, foods are kept fresh and tempting to the customer.

Meeting every need of the food merchant for display, storage, quick, convenient service, the whole McCray line is adapted for electric or mechanical refrigeration. *In every McCray model, mechanical refrigeration of any type may be installed at once. No changes or alterations necessary.*

And the staunch construction of McCray



The McCray No. 411 Refrigerator. Most popular type of grocer refrigerator. Compartments enable quick, convenient service.

equipment, proved in 40 years of service, insures efficient operation with any type machine.

Shown above are four McCray units especially suited to the needs of food merchants. Pure corkboard insulation, sealed with hydrolene cement, is used in all McCray models. McCray quality is built into every hidden detail.

Remember, that it is the refrigerator itself which determines the operating cost and efficiency of any machine. In the McCray line, dealers in mechanical refrigeration can offer a time-tested product.

Write for information regarding the McCray line. No obligation to you, of course.

McCray Refrigerator Sales Corporation, Dept. 66, Kendallville, Indiana
Salesrooms in All Principal Cities (See Telephone Directory)

WORLD'S LARGEST MANUFACTURER OF REFRIGERATORS FOR ALL PURPOSES

McCRAY REFRIGERATORS

ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

PUBLISHED EVERY TWO WEEKS BY

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AUGUST 14, 1929

Tests vs. Specifications

OUT of the endless bickering that has so befuddled attempts to draft a new refrigeration ordinance for the city of Chicago, a new principle has arisen that is as clear and understandable as its predecessors have been involved and complex. Whether or not Health Commissioner Kegel's proposed safety test is too stringent as it now stands is a debatable matter. But it is hard to argue with the fact that in principle it is entirely sound.

Other safety codes pile up a chaotic heap of regulations concerning kinds and sizes of material, types of joints and connections, methods of installation and inspection, varieties of fittings and valves, and quantities of specified refrigerants. Dr. Kegel, in contrast, casts aside all these details of design, and substitutes a simple test. He proposes to limit, not the pounds of gas which any system can contain, but the amount of refrigerant which can leak out into any one apartment in case of fracture at any point of the system.

However difficult the requirements of this new code may be from the standpoint of practical construction, the principle involved is worthy of careful consideration. Commissioner Kegel has sensed the true position of any person or group which is set up to draft a safety ordinance. It is not his function to tell the manufacturer how to make his product. It is his function to protect the health of the public. Hence, he can determine what constitutes safety, and can establish tests for products to meet. How to satisfy these tests he leaves to the better judgment of the manufacturer.

The advantages of a code which calls for tests rather than specifications are apparent. The engineer is stimulated to develop whatever designs or methods he may conceive; while the manufacturer can adopt whatever he sees fit from the ideas and inventions which flow out of his laboratory. Under regulation of this sort the industry is left free to grow and to expand. Progress is not limited—it is encouraged.

The shackles that antiquated laws put upon industrial development are as well known as they are deplorable. In the past, various branches of the electrical industry have had to contend with code provisions which were adopted in the early stages of the art, and which defeated their own purpose by prohibiting new and safer types of apparatus unforeseen by makers of the code. Such situations have badly stunted the growth of certain branches of the industry. They have discouraged inventive genius, and have prevented the use of materials and methods which could have saved the public thousands of dollars in lessened production costs and increased efficiency.

Still young, still searching for better methods, the refrigeration industry faces a magnificent future. Its rise to undreamed-of peaks of sales should not be hampered by restrictions upon its development of production and installation ideas. To pass any ordinance which specifies how a refrigeration system shall be made, and from what it shall be constructed, is dangerous. To establish tests which such systems shall meet is, however, entirely reasonable.

Electric Refrigeration News has consistently adhered to the doctrine that the industry should cooperate to write a code which would protect, not only the public from possible hazards, but the industry from unnecessarily restrictive measures as well. Internal strife and honest disagreements have thus far prevented technical committees from producing such a code. It has remained for a public official to point the way. We repeat that although his tests may need revision in the light of practical engineering experience, his principle is eminently sound and constructive.

The Chicago situation has become so thoroughly publicized all over the country that whatever is eventually evolved by the authorities there in the nature of a code is likely to be widely copied. So exhaustively have Chicago officials investigated the entire subject, and so effectively have they kept their activities in the public eye, that corresponding officials in many other cities will be prone to accept their findings without question. It behooves the industry to see that the code adopted by the Chicago City Council is sufficiently sound in principle and pliable in nature that it can serve an entire nation for years without restricting the further development of the art.

ILLUMINATING GAS NOT COMPARABLE WITH REFRIGERANTS

AMERICAN GAS ASSOCIATION
420 Lexington Avenue
New York City

August 6, 1929

Electric Refrigeration News,
Detroit, Michigan

We have been very much interested in your recent issues of Electric Refrigeration News discussing the safety aspects of automatic refrigeration, and giving in our opinion a pertinent and fair discussion of this subject in the main.

One of the articles, however, carried in the July 17th issue signed by E. F. Beldin, assistant secretary, American Ice Machine Company, Glendale, Calif., analyzing at your request the proposed refrigeration codes incorporates such a striking misstatement of this subject as to require a definite reply in the interest of accuracy and fair competition.

After giving it as his opinion that "when properly installed and tested a central multiple refrigerating installation presents practically no safety hazard," Mr. Beldin proceeds to make a detailed comparison between the alleged hazards of refrigerants used in multiple systems and present day use of fuel gas systems installed in apartments.

Aside from the misstatements made in this comparison, Mr. Beldin has endeavored to compare the relative safety of two systems which have no possible points of similarity, either as to their purpose or the type of service which they are intended to render. This is well illustrated by the first point which states that "whereas the refrigerants are either non-inflammable or nearly so the fuel gas distributed in apartment buildings, etc., is highly inflammable." How any fuel gas could be effective which is not flammable is hard to understand.

Further on in point seven, Mr. Beldin states that the refrigerants are not easily discharged by children, whereas fuel gas is easily discharged into rooms by hand valves. Such a comparison means nothing inasmuch as the refrigerating operation is intended to be an entirely automatic function so far as the public is concerned, whereas the use of fuel gas for cooking and heating purposes is recognized by the public as being subject to manual control and not automatic in any sense.

Aside from the error of endeavoring to compare these two entirely different and dissimilar services, the comparison has many other points of inaccuracy. As an example of the inaccuracy of this statement, Item No. 3 states that fuel gas does not warn of leaks, whereas the refrigerant makes it easy to detect leaks. So far as we know, in the manufactured gas industry no company is distributing gas for the use of the public which does not have a decided odor given to it for the specific purpose of warning persons of gas leakage. That all refrigerant materials do not have such warning effects can readily be seen from recent experiences along this line. The same comment applies to Item No. 4 stating that the refrigerant is only slightly toxic and incapable of causing injury without warning.

Item No. 5 makes it appear that the safety factor utilized in testing fuel gas piping is the same as that employed in testing multiple system refrigerator pressure lines. The average gas pressure existing in the house piping system would probably be about eight inches of water pressure. Current practice in the testing of these gas lines calls for a pressure test under about ten times this amount. We do not understand that any such safety factor is utilized in testing refrigeration pressure lines in multiple systems.

Item No. 6 points out that the source of supply of fuel gas is unlimited, whereas the refrigerant operates in a closed system carrying a limited supply. This statement as to the limited supply of the refrigerant is entirely beside the point so long as the amount available in the multiple system is sufficient to constitute a hazard.

Item No. 8 states that whereas in the refrigerating system every riser is valved making notification of tenants unnecessary, in a fuel gas system the entire system must be shut-off for repairs, necessitating the notification of every tenant when gas is again turned on. Except in a very small percentage of installations where a single system is used in an apartment house to supply gas to all tenants, this item is completely inaccurate. We would say that in 99% of all the apartment houses served by gas in the United States, each consumer has a separate piping system and meter through which the gas passes to his appliances and which can be readily cut-off without regard to other tenants in the building.

We have pointed out about the inaccuracies in comparison between the refrigerant material used in a central multiple system and the fuel gas used for general purposes in apartment buildings. The comparison when applied not to the general piping system used for distributing gas throughout a building but to the individual gas fired refrigerator, becomes even more inaccurate. In this case every gas refrigerator is

Chicago Distributor Holds Meeting of Trupar Dealers



Trupar electric refrigerator dealers in Chicago territory attended a sales meeting held on July 25 by the Kellogg-Mackay Co., Chicago distributors. R. E. Bidwell, vice-president and general sales of the Kellogg-Mackay Co., conducted the meeting and was assisted by J. A. Farrell, manager of the refrigeration division.

W. J. Lantz, president of the Trupar

Company, Dayton, Ohio, outlined to the dealers the progress made in distributing Trupar units. He reported nearly a 100 per cent sales increase for the first six months of this year as compared to the same period in 1928. Fred Geiler, chief engineer, spoke on the design and construction of the equipment. Methods of service and installation were also discussed.

Index of Volume III In Next Issue

The next issue of Electric Refrigeration News, No. 26, Volume 3 (Serial No. 76), which will be the last issue of the third volume will contain an index of subjects, companies and individuals which have been prominently mentioned in that volume. This index will be divided into two parts, one will contain an alphabetic listing of subjects, while the other part will contain an alphabetic listing of the names of companies and individuals.

equipped with an automatic burner which immediately shuts off the gas should the flame cease for any reason. This safety device prevents the discharge of gas into the room by children or by deliberate intent, as alleged in Item 7.

We are at a loss to understand what could have led Mr. Beldin to make such an illogical and inaccurate comparison of these two dissimilar services in the home. Had he taken time and trouble to prepare a detailed comparison of the relative safety of central multiple refrigerating installations with individual units, a subject capable of valid comparison, we feel sure he would have reached a conclusion as unfavorable to the multiple system as was given for the fuel gas system. Such a comparison would have been a real help to the industry in determining the relative safety merits of the various systems of supplying automatic refrigeration.

ALEXANDER FORWARD,
Managing Director.

CODE OPPOSITION BY CERTAIN INTERESTS MAY HARM INDUSTRY

BRUNSWICK-KROESCHELL CO.
New Brunswick, N. J.

July 22, 1929.

Electric Refrigeration News,
Detroit, Mich.

Proposed Safety Code for Chicago

A proper code should be adopted at the earliest possible moment for all municipalities, which code should provide for reasonable safety, particularly with reference to dangerous gases but should protect the public as well against unreasonable legislation which might handicap the refrigerating industry which is so essential for the public's safety and comfort through the preservation of foods and proper conditioning of air.

The opposition to the adoption of reasonable safety codes, which has been quite evident for the last year or so on the part of certain interests, is most deplorable and may well result in the adoption of unfair codes and un-uniform codes by various municipalities, which will result in a hardship to the purchasing public and to the industry as a whole.

Very truly yours,
S. B. CARPENTER,
First Vice-President.

SENDS OPEN LETTER TO CODE COMMITTEE

AMERICAN ICE MACHINE CO.
Glendale, California

August 10, 1929.

Thurlock G. Essington,
231 South LaSalle Street,
Chicago, Illinois.

It is easy to stand on the side lines and criticize. Permit us, however, to make this observation: Dr. Kegel appears to have made an unanswerable charge when he says: "This is really an admission on the part of the industry, when they speak of limiting the amount of refrigerant which can be held in one of these multiple systems, that there is danger concerning the amount. If you can make them tight why not have one thousand, three hundred or one pound of refrigerant? If there is any difference in the amount you have got to bring it down below the point where it will be a hazard to health."

Would it not greatly strengthen the manufacturers' position to adopt a "live and let live" policy, and unite for sane, inexpensive protection against food-spoilage instead of uniting against each other.

Dr. Kegel sees the fallacy of a 100 pound refrigerant limit. The only refrigerant limit which would mean a thing from the standpoint of safety would be a limitation to about one half pound, and such a limit is not necessary if proper safety measures are enforced.

Central multiple refrigeration is here to stay, because it brings protection against the dangers of food spoilage to thousands who could not otherwise afford it. This it does by a compound reduction of costs, including the following:

- Cuts initial investment 45%
(Based on Pacific Coast costs)
- Cuts operating costs 77%
(In buildings of 40 units or larger)
- Cuts depreciation.
(Large central plant should last 50 years)
- Cuts repair bills.

If central multiple refrigerating plants are to be ruled out on the ground that an expensive substitute can be used, then fuel gas (which presents a hazard many times greater) should be ruled out on the ground that everyone can use electricity or coal oil for cooking.

Let us have safety. Let us abandon stupid compromises which weaken the fight to bring food preservation to all.

KENNETH BELDIN,
Treasurer.

COMMENDS EDITORIAL POLICY OF THE NEWS

ELECTRIC REFRIGERATOR CO.
OF NEW ENGLAND

Offices 729 Boylston St.
Boston, Mass.

July 24, 1929.

Electric Refrigeration News,
Detroit, Mich.

Having been a subscriber to the News since its early days and having on file every issue from No. 3 up, I have followed your editorial policies and comments very closely.

You will find in your file, I believe, two or three communications from me expressing my approval of this policy and now that I have reread in your July 17th issue a review of your various editorials regarding the advisability of co-operation rather than competitive destructive knocking, I want to take this opportunity of expressing again my hearty approval of a policy that is fundamentally sound and that you have had the good foresight to adhere to.

It has been difficult at times to convince some of my associates as to the advisability of sticking entirely to the good points and advantages of the machine they were selling and forgetting any apparent weak points or disadvantages in competitive machines. A thorough comparison of course, of competitors is always permissible providing the comparison emphasizes our good points rather than stresses the bad points of the competitors.

A situation similar to the one described in your editorial of January 5th, 1927, cannot be avoided if one industry feels its most important function is to knock its competitors. Revenge seems to be characteristic of the human race and sooner or later the other fellow has his turn.

Very truly yours,
L. H. HOLMAN.

50° DANGER MARK IS OKEYED BY CHICAGO HEALTH DEPARTMENT

UNQUALIFIED approval of the National Food Preservation Council's program to educate the public that "50 degrees is the danger line" comes from the entire Chicago Department of Health. For years these city officials have been advocating that all foods be kept at that temperature or below.

"We've been trying to teach our people that foods must be kept at 50 degrees or less all along," says Dr. Arnold H. Kegel, Commissioner of Health. "For practically all foods 50 degrees marks the limit of safety."

Commissioner Kegel is heartily seconded by Assistant Commissioners Koehler and Jones. For more than two decades Assistant Commissioner Koehler has been insisting that mercantile establishments protect their customers by keeping all foods below that temperature, and he has also spent much time in educating the people of Chicago that foods must be refrigerated in the home at 50 degrees or less.

"If anyone doubts that something happens above 50 degrees," asserts Dr. H. C. Becker, Chief of the Dairy Products Bureau, "let him look at our laboratory tests of milk at 55, 60, 65, 70 degrees and higher temperatures. The rate at which bacteria increase in milk at more than 50 degrees is astounding. We have always insisted that milk should be kept below that temperature."

J. P. Kilcourse, Chief of the Food Inspection Bureau, also avers that foods kept at temperatures above 50 degrees are dangerous.

"As far back as I can remember my bureau has advocated a temperature of 50 degrees or less for the preservation of foods," says Mr. Kilcourse. "It matters little whether it is meat, fish, vegetables, fruit, or milk with which one is concerned. All deteriorate rapidly at temperatures above 50 degrees."

The rate of bacterial increase is almost static at 50 degrees, according to Dr. King of the Bureau of Food Inspection. Dr. King, for many years a member of the Chicago Health Department, is recognized as one of the city's leading specialists on food poisoning. He recommends that all foods be kept below 50 degrees from the time of purchase until the time of consumption.

GRAF ZEPPELIN CARRIES A LETTER TO COPELAND FROM CARL FINK, DISTRIBUTOR

When the Graf Zeppelin made its recent voyage to America it carried a letter from Germany to Copeland Products, Inc. And on its return to Frederickshaven it carried a Copeland reply to that letter.

The letter from Germany was from Stuttgart, written by Carl Fink, distributor in Germany of Copeland products. The letter was intended as a greeting from Germany, "taking advantage of forwarding a message by the shortest and quickest way of sending a letter to the United States" and as an indirect compliment to Dr. Eckener, commander of the Graf, whom it styled "the leader of air consciousness" and for whom the hope was expressed "for a successful outcome of his trip for the benefit and blessing of mankind."

The letter displayed the special stamps seen in America for the first time and likely to have considerable philatelic value. The stamp showed a Zeppelin flying over the top of the world and the words (translated) "German air mail," "America," and "Europe" and cost 4 reichsmarks, equivalent to 99 cents. The cancellation mark, also printed in German, showed a Zeppelin arriving at New York city, whose skyline was ingeniously depicted as was the Statue of Liberty.

Carl Fink, Jr., son of the writer, recently spent a month in Detroit at the Copeland plant, studying the manufacture and sale of electric refrigeration systems.

ELECTRIC REFRIGERATOR MANUFACTURERS IN NEED OF PISTONS AND PINS FANS OR PULLEYS
Get the very best and save money—tell us your needs
QUALITY MFG. CO.
Watertown, Mass.

The leading refrigerator manufacturers are buying
BOSLEY'S
"Ice Saver" Gasket
for it is the best uniform quality insulation
Write us
The D. W. Bosley Company
1901 Carroll Ave., Chicago, Ill.

Calm and Cool

United States Senators need no longer get hot under the collar during their wordy battles for party, principle, power, and politics on the floor of their historic chamber. They may be expected to be cool at all times, and to turn a cold shoulder and a freezing mien toward many a proposition that might once have received a warm reception; for the Senate has just been equipped with a gigantic refrigerating system.

This new cooling system is said to have refrigerating power equivalent to the melting of 350,000 pounds of ice every day. It will greet the returning Senators with a brand new atmosphere when they reconvene August 19.

W. J. K. HUNT JOINS COPELAND; WILL ASSIST DISTRIBUTORS

W. J. K. Hunt, known as "Skipper" among friends and associates, has joined the Copeland Sales Co. He will assist distributors with organization problems and aid them in the marketing of Copeland products.

Mr. Hunt has an extensive sales-engineering background, having held responsible positions in sales management and promotion during the past 15 years. His experience in the electric appliance field began in 1925, with the Electric Vacuum Cleaner Co., a subsidiary of the General Electric Co., as division manager in Chicago and New York.

He entered the electric refrigeration industry in 1927 with the Barber Asphalt Co. and managed the affairs of the Philadelphia-Iroquois Co. as president until the Barber Co. discontinued the manufacture of Iroquois units.

Last January, Mr. Hunt planned and directed a special sales campaign for the Electric Refrigeration Co. of New England, distributors of General Electric refrigerators.

ATTENDANCE AT MEETING, N. E. M. A. REFRIGERATION DIVISION IN CLEVELAND

The following representatives were present at the meeting of the Refrigeration Division, National Electrical Manufacturers Association held in Cleveland, August 1. (See story on page 1.)

T. K. Quinn, manager of the Refrigeration Division, General Electric Co., Dayton, Ohio.
G. W. Mason, president, Kelvinator Corp., Detroit.
L. Ruthenberg, president, Copeland Products, Inc., Detroit.
H. W. Foulds, vice president, Servel, Inc., New York City.
W. F. Thatcher, vice president, Servel, Inc., New York City.
G. M. Johnston, president, Universal Cooler Corp., Detroit.
E. B. Mallory, president, Climax Electrical Refrigeration Co., Chicago.
R. E. Dinsmore, director of sales, Norge Corp., Detroit.
H. J. Redwood, vice president and general manager, Absopure Refrigeration Corp., Detroit.
C. D. Taylor, manager of Refrigeration Department, Westinghouse Electric and Mfg. Co., Mansfield, Ohio.
Glen Muffly, Copeland Products, Inc., Detroit (Chairman).
E. T. Williams, Servel, Inc., New York City.
C. C. Spreen, Kelvinator Corp., Detroit.
A. R. Stevenson, Jr., General Electric Co., Schenectady.
H. D. Edwards, Union Carbide and Carbon Corp., (non-member, representing the American Standards Association).
H. J. Redwood, Absopure Refrigeration Co., Detroit.
Arden Yenke, MacManus, Inc., Detroit (representing Kelvinator Corp., Detroit).
W. E. Lopeman, Fuller and Smith, Cleveland (representing Westinghouse Electric and Mfg. Co., Mansfield, Ohio).
O. D. Street, Lord, Thomas & Logan, New York City (representing General Electric Co., Cleveland).
B. B. Geyer, Geyer Advertising Co., Dayton, Ohio (representing Frigidaire Corp., Dayton).
P. B. Zimmerman, general sales manager, General Electric Co., Cleveland.
A. M. Taylor, advertising manager, Copeland Products, Inc., Detroit.
William Reynolds, advertising manager, Servel, Inc., New York City.
Walter Daily, promotion manager, General Electric Co., Cleveland.
F. M. Cockrell, editor, Electric Refrigeration News, Detroit.

Seepage Proof Tube Fittings

Complete catalog of fittings for refrigeration industry sent on request.

Ask for Catalog No. 36

"Built Right—to Stay Tight"

Send for Catalog 36

Commonwealth Brass Corporation

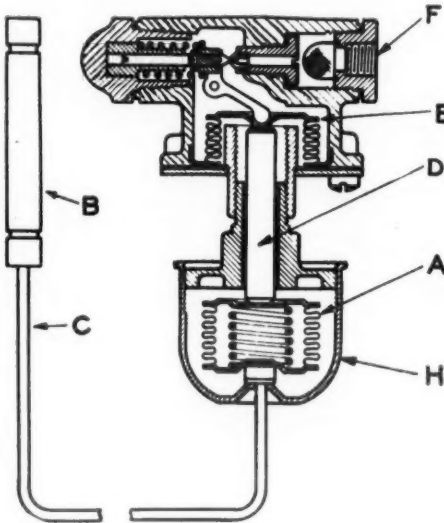
COMMONWEALTH AVE. AND G. T. R. R.

DETROIT, MICHIGAN.

MULTIPLE SYSTEMS

One pound or less of refrigerant per unit using

American Thermostatic Expansion Valves



- A—Thermostatic power element.
- B—Thermostatic bulb.
- C—Flexible tube.
- D—Operating stem.
- E—Bellows seal.
- F—Liquid inlet.
- H—Housing and adjusting element.

2-Section 11" American Domestic Refrigerating Unit equipped with American Thermostatic Expansion Valve.



Thousands of American Thermostatic Expansion Valves are now in use on multiple installations in conjunction with various types of direct expansion lowsides using on the average one pound or less of refrigerant per unit.

American Domestic Refrigerating Units, as illustrated above, equipped with American Thermostatic Expansion Valves are among these installations, and are using less than one pound of refrigerant per unit.

American Domestic Refrigerating Units and American Thermostatic Expansion Valves are available for immediate shipment in any quantities.

The essential characteristics of this combination are:

1. Gives a positive trouble-proof installation.
2. Reduces the amount of refrigerant in any system 50% to 75%.
3. Makes the compressor capacity the determining factor in the number of boxes that can be connected to a single machine, and not the receiver capacity.
4. Permits of adjustment on the job to take care of variable demands.

Send For Detailed Information and Prices

AMERICAN RADIATOR COMPANY

INDUSTRIAL DIVISION

816 South Michigan Avenue, Chicago

40 West 40th St., New York

1423-25 Baltimore Avenue, Kansas City, Mo.

Quinby Building, Los Angeles

Hitch Your Future To a Preferred Product

Norge success is established and was inevitable.

Why

Because the science of electric refrigeration has rapidly advanced in a few short years and today the super-efficiency of the Rotary Compressor is an accepted fact.

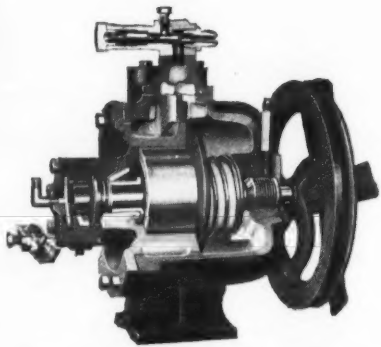
Norge pioneered this type of compressor and its claims to supremacy have been tested and proven in many thousands of homes and apartments from California to Maine and from the Arctic Circle to the Gulf.

Permanently quieter—more compact—less wear—greater economy—more power—longer life!

In addition, Norge actually compensates for its own wear—an exclusive Norge feature. As it grows older, it becomes even more efficient and uses even less electric current.

What a magnificent picture for a dealer to portray to a prospect! What an edge in competition! What an opportunity to become the leading electric refrigeration merchant in the community!

Hitch your future to Norge!



Illustrating the Norge EXCLUSIVE Self-Compensating Rotary Compressor.

We urge every refrigeration dealer to profit by active co-operation with the National Food Preservation Program. This Program has our endorsement.

Norge Corporation

Silent, Economical Refrigeration

DETROIT

MICHIGAN

Refrigerating Machines Listed By Underwriters' Laboratories

THE Underwriters Laboratories of the National Board of Fire Underwriters, 207 East Ohio Street, Chicago, Ill., has issued the July, 1929, edition of its semi-annual "List of Inspected Gas, Oil and Miscellaneous Appliances." In addition to the refrigerating machines which have been inspected for fire and accident boards, the book includes in "Section One" acetylene equipment, discharge

devices for hazardous liquid, electric lighting plants, gas heaters and appliances, oil burners, tanks for hazardous liquid, and various other devices, fittings and accessories.

"Section Two" deals with liquids and materials rated in accordance with the Underwriters Laboratories' schedule for classification for hazardous liquids while "Section Three" deals with miscellaneous liquids and materials classified as to fire hazard only.

In "Section Three" methyl chloride manufactured by the Roessler & Hasselbacher Chemical Co., Niagara Falls, N. Y., is listed for fire and accident hazards as follows:

"A moderately flammable refrigerant, somewhat heavier than air, and of a high degree of purity. It is shipped compressed to a liquid in steel drums under a pressure not exceeding 70 lb. per sq. in. when at 70 degrees F.

"Its general hazard is very much less than that of gasoline. This hazard as compared with that of ammonia can be fully determined only by practical experience, and will depend largely on the construction, operation, and size of refrigeration systems and their capability of giving service without leakage and whether safeguarded against the emergency hazards of mechanical systems, operating under pressure. When confined in the refrigeration unit, the fire hazard of methyl chloride is small."

REFRIGERATING MACHINES LISTED

The following refrigerating machines are listed for "fire and accident—re-examination service" as follows:

Absopure Refrigeration Corp., Detroit, Mich.

"Absopure" Compression type (air or water-cooled) employing 2 to 15 lbs. of methyl chloride, a flammable gas, as refrigerant. For use with one ice box only. Compressor driven by automatically-controlled electric motor.

Marking: "Absopure," name and address of manufacturer, Type "B," "C," "E," "F," "H" or "I" on name plate secured to compressor base.

Belding-Ball Electrical Corp., Belding, Mich.

"Electric" Compression type (air-cooled) employing 3.35 lb. of sulphur dioxide, a non-flammable gas, as refrigerant. Compressor driven by automatically-controlled electric motor. For use with one ice box only.

Marking: "Electric," name and address of manufacturer on name plate. Series No. 500 or 702 stamped on compressor. Motor name plate bears electrical rating of the motor.

Copeland Products, Inc., Detroit, Mich.

"Copeland" Compression type (air or water-cooled). Compressor driven by automatically-controlled electric motor. For use with one water cooler or one household ice box.

"Type 1" employing a maximum of 1½ lb. of freon (isobutane, a flammable gas), as refrigerant.

"Types 2 and 3" employing a maximum of 6 lb. methyl chloride, a flammable gas, as refrigerant.

"Type 4" employing 5 lb. methyl chloride, a flammable gas, as refrigerant.

Marking: Name and address of manufacturer on name plate, Types 1, 2, 3 or 4 separately attached plate.

"Copeland" Multiple unit system suitable for installation where more than one cooling unit is operated by a single compressor. All equipment and installation specifications comply with the N. B. F. U. Code requirements. One hundred pounds or less methyl chloride (a flammable gas) employed as a refrigerant.

Marking: Name and address of manufacturer on compressor frame plate. Type 2 or 4 on separately attached plate.

Electro-Kold Corp., Spokane, Wash.

"Electro-Kold" Compression type (air-cooled) employing 5 lb. of sulphur dioxide, a non-flammable gas, as refrigerant. Compressor driven by automatically-controlled electric motor. Suitable for use with one ice box only.

Marking: "Electro-Kold" Type "C," serial number, name and address of manufacturer on compressor base. Motor name plate bears electrical rating of motor.

Electrolux Servel Corp., New York, N. Y.

"Electrolux" Absorption type (water-cooled), employing 1.62 liters aqua ammonia, specific gravity 0.885 and 15° C. and 4.25 liters hydrogen at 16 atmospheres as refrigerant and inert gas. Heated by automatically-controlled gas burner or electric heating element.

Marking: "Electrolux," Type "WG75" or "WE75" and name and address of manufacturer on name plate.

Frigidaire Corp., Dayton, Ohio.

"Frigidaire" Multiple unit system suitable for installation where more than one cooling unit is operated by a single compressor. All equipment and installation specifications comply with the N. B. F. U. Code requirements. 100 lb. or less sulphur dioxide (a non-flammable gas) employed as refrigerant. Standard when installed in accordance with the N. B. F. U. Code for Multiple Systems.

Marking: "Frigidaire," serial number, and model A, K, Y, O, N, C, or D on compressor name plate.

"Frigidaire" Suitable for use with one ice cream cabinet, water cooler, or

ice box. Compression type (air or water-cooled) employing 15 lb. or less of sulphur dioxide (a non-flammable gas) as refrigerant.

Marking: "Frigidaire," serial number, and Model EF, EFE, EW, A, B, K, Y, O, N, C, D, SC, EWO, BP, AO, or YO on name plate.

General Electric Co., Schenectady, N. Y.

"General Electric" Compression type (air-cooled) employing not more than 10 lb. of sulphur dioxide, a non-flammable gas, as refrigerant. Compressor driven by automatically-controlled electric motor.

Marking: "General Electric" Iceing Unit, Type DR2 or DR3, Form D, and motor rating on name plate attached to compressor unit base.

Holmes Products, Inc., New York, N. Y.

"Holmes" Compression type (air-cooled) employing 1.9 lb. of ethyl chloride, a flammable gas, as refrigerant. Compressor driven by automatically-controlled electric motor. For use with one ice box only.

Marking: "Holmes," name and address of manufacturer, Type "C," and motor rating on plate secured to compressor unit.

Iceberg Mfg. Co., Gardner, Mass.

"Iceberg" Household refrigerating machine and water cooler, compression type, air-cooled, employing 2 lb. of methyl chloride, a flammable gas, as refrigerant. Compressor driven by automatically-controlled electric motor. For use with one icebox or water cooler only.

Marking: "Iceberg," name and address of manufacturer, Type "J," "K," 100-A, or 100-B, on name plate secured to compressor frame. Motor rating on motor name plate.

Icemaster Co., Haverhill, Mass.

"Icemaster" Compression type (air-cooled) employing 4 lb. of methyl chloride, a flammable gas, as refrigerant. Suitable for use with one ice box only. Compressor driven by automatically-controlled electric motor.

Marking: "Icemaster" Type M1B, M2B, or M2R, serial number and name and address of manufacturer on compressor base.

Iroquois Electric Refrigeration Co., Philadelphia, Pa.

"Iroquois" Compression type (air-cooled) employing 10 lb. of ethyl chloride, a flammable gas, as refrigerant. Compressor driven by automatically-controlled electric motor. For use with one ice box only.

Marking: Name and address of manufacturer, Type "C-1" and serial number followed by letter "B" on name plate secured to compressor base. Motor name plate bears the electrical rating.

Kelvinator Corp., Detroit, Mich.

"Kelvinator" Compression type (air or water cooled) employing not more than 8 lb. of sulphur dioxide, a non-

flammable gas, as refrigerant. Compressor driven by automatically-controlled electric motor. Suitable for use with one ice box or ice cream cabinet only.

Marking: Name and address of manufacturer and Model "AA," "AJ," "AS," "AF," "AFE," "WF," "AH," "WH," "AK," "WB," "D" or "T" on compressor name plate.

Norge Corp., Detroit, Mich.

"Norge" Compression type (air-cooled) employing 15 lb. of sulphur dioxide, a non-flammable gas, as refrigerant. For use with one ice box only. Compressor driven by automatically-controlled electric motor.

Marking: "Norge," Model 320, "500," "675," "1000" or "2000," serial number, and name and address of manufacturer on plate attached to compressor base. Motor rating on motor name plate.

Savage Arms Corp., Utica, N. Y.

"Savage" Mercury refrigerating machine, for use with one ice cream cabinet of compression type, air-cooled, employing not more than 10 lb. of methyl chloride, a flammable gas, as refrigerant. For use with one ice-box only.

Marking: "Savage," Models 17 or 18, and serial number on compressor enclosure and motor rating on motor name plate.

Servel, Inc., Evansville, Ind.

"Servel" Compression type (air-cooled), employing a maximum of 6 lb. methyl-chloride, a flammable gas, as refrigerant. Compressor driven by automatically-controlled electric motor. For use with one cooling unit only.

Marking: "Servel" Model Nos. 21A, 22A, 23A, or 24A and serial number on compressor base name plate.

"Servel" multiple unit refrigerant distribution system. For installation where more than one cooling unit is operated by a single compressor. For use with compressors and cooling units of listed design when installed in accordance with the N. B. F. U. Code requirements. Refrigerant methyl chloride (a combustible gas), not over 100 lb.

Marking: Name and address of manufacturer on junction box plates.

Universal Cooler Corp., Detroit Mich.

"Universal Cooler" Compression type (air-cooled) employing 3 lb. methyl chloride, a flammable gas, as refrigerant. Compressor driven by automatically-controlled electric motor. Standard when connected to only one refrigerator.

Marking: "Universal Cooler" Model B, serial number and name and address of manufacturer on compressor unit base. Motor rating on motor name plate.

Wayne Home Equipment Co., The, Fort Wayne, Ind.

"Wayne" Compression type, air-cooled, employing sulphur dioxide, a non-flammable gas, as refrigerant. Suitable for one ice box only. Compressor driven by automatically-controlled electric motor.

Marking: "Wayne" Type "A-1," "A-2," "C-1" or "C-2" and name and address of manufacturer on compressor base.

Welsbach Co., Gloucester, N. J.

"Welsbach" Compression type, air-cooled, employed 20 oz. of ethyl chloride, a flammable gas as refrigerant. Compressor driven by automatically-controlled electric motor. Equipment suitable for one ice box only.

Marking: "Welsbach," name and address of manufacturer, serial number and type numbers C-1, S-1, C-2, S-2, or S-25 on compressor base.

Zerozone Corp., Chicago, Ill.

"Zerozone" Compression type (air-cooled) employing 3 lb. of sulphur dioxide, a non-flammable gas, as refrigerant. Compressor driven by automatically-controlled electric motor. Suitable for use with one ice box only.

Marking: "Zerozone" Model SC and serial number on compressor base.

These are the selling features of the

PENN Quick Freeze ATTACHMENT

BY adding this new "Cold Regulator" to your ice machine, you can offer all that is modern in electric refrigeration... a simple easy way to regulate the temperature of the ice compartment; quicker freezing of ice cubes; frozen salads and delicious frozen desserts. The increased sales advantage of the Quickfreeze attachment will quickly repay you for the slight additional charge.



Manufacturers of ice machines now using either of the well-known Penn Refrigerator control switches, Types L and E, and other manufacturers of standard electric refrigerators interested in these better controls, are especially invited to test Quickfreeze at our expense.

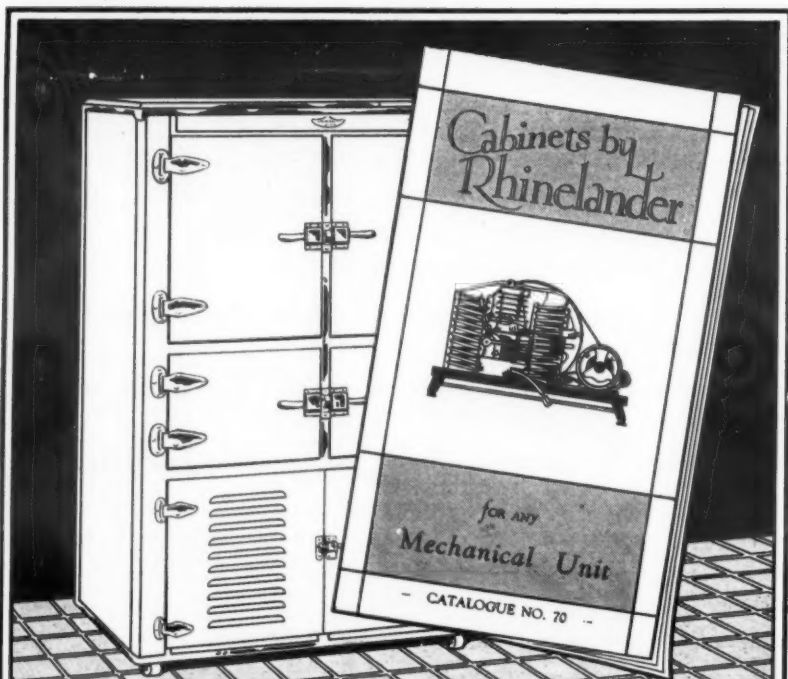
PENN ELECTRIC SWITCH CO.
DES MOINES, I.A.

Manufactured by an organization of proven engineering ability that supplies the largest and best concerns of the country with automatic control switches.

PROFITABLE SALES

Selling Rhinelander "Airtite" cabinets equipped with standard mechanical units invariably means increased profits per sale. These beautiful refrigerators in white and colors make an instant appeal to the most discriminating prospect. May we send you catalog No. 70 and complete price information?

RHINELANDER REFRIGERATOR CO.
RHINELANDER, WISCONSIN



Refrigeration Survey in Southeastern States

ESTIMATES 45,000 REFRIGERATORS SOLD IN TERRITORY SERVED

25 Companies Report Interesting Sales and Service Data

To determine the extent of the activities of utility merchandising organizations in the sale of domestic electric refrigeration in the territory of the Southeastern Division of the National Electric Light Association, the Refrigeration Committee, working under the direction of the General Merchandise Committee, presented a questionnaire to member companies seeking information regarding this work.

This report made in June, 1929, contains interesting data relative to sale and service of electric refrigerators in that territory. It is divided into three sections, the first of which contains the approximate number of sales made during 1928, kinds of competition met, advertising and selling methods. Section II is devoted to service and installation information, which includes installation costs, sources of trouble, service charges, service departments and "orphaned" refrigerators. Section III considers compensation of salesmen, prospective sources, exchanges and premiums, time payments and terms.

ANALYSIS OF SECTION I, GENERAL INFORMATION

TWENTY-ONE electric utilities in the Southeastern Division reported in the Refrigeration Bureau's questionnaire covering all electric refrigerator activities through 1928, that to date there had been sold in this territory approximately 39,000 electric refrigerators. Considering that four large companies were unable to report on the number of refrigerators sold on their lines since the entrance of this appliance on the market a few years ago, it is conservatively estimated by this committee that about 45,000 electric refrigerators are operating in this Division. This is a little better than 8% of the total number of domestic meters.

Surprisingly, over half of these units have been sold—not by the utilities—but through other dealers. This is reported in direct opposition to the preponderance of negative answers received to the question—"Have you ever tried to organize the electric refrigeration dealers in your territory with the view of bettering existing trade practices?"

This is consistent with the many blank spaces left where the question, "What did you do in 1928 to sell the idea of electric refrigeration?" appeared.

Without doubt, the development of the domestic market at an early date, and the answer to the executive demand of more kilowatt hours per home per year can be largely met by constructive action on these two all important questions—and at the lowest possible promotional cost.

Representation as to Manufacture

Of the twenty-five utilities reporting we find the following distribution of products:

- 8—General Electric—exclusive
- 4—Frigidaire—exclusive
- 2—Kelvinator—exclusive
- 1—Serval—exclusive
- 3—General Electric and Kelvinator
- 3—Frigidaire and General Electric
- 3—General Electric and Serval
- 1—General Electric, Kelvinator, Frigidaire

This rather clearly brings out the point that the majority of utilities believe that an exclusive franchise is best.

Specialization as to Make

Reasons for so specializing were varied, but most of the answers brought out that the lower investment and the resulting turnover were the fundamental reasons for such specialization. Practically all of them agreed that closer manufacturer co-operation, lowered service costs, reduced promotional expense, and fairness to other dealers so engaged, was only possible by a policy of specialization.

As a matter of fact specialization in this field, has been insisted upon by the manufacturers, who contend that an exclusive dealer is worth more to them than a dealer who, figuratively speaking, is trying to burn the sales candle "at both ends."

Method of Refrigerator Selling

It is also interesting to note that a decided majority, twenty out of twenty-six, are in favor of intensive campaigns; and although this same majority maintains a steady month-to-month program it is done principally to assure the success of these intensive sales periods.

Number of Domestic Meters and Refrigerator Units Sold

And this policy is substantiated in sales, as companies so concentrating their

efforts show by far the most successful sales records. There were approximately 8,742 refrigerators sold in the Southeastern Division in 1928 by the member operating companies and the gross business amount to less than two and a half million dollars. When we consider that these same utilities reported 550,125 domestic meters having an average yearly growth of 7% the figures are even more illuminating.

Taken from a per meter per machine basis we are about five times behind our normal increase in residential meters per year. The market has not been scratched—there are millions of dollars of business here waiting to be billed.

As this report deals only with present facts regarding the industry no attempt will be made at this time to ascertain why more refrigeration is not being sold, nor will we incorporate any promotional scheme to realize a more proportionate volume of sales by public utilities. However, the committee believes that executive interest can not help but eventually center upon the sale of this device because of its inherent characteristics. The revenue possibilities entitle it to much consideration.

Sales Promotion Departments

Regarding Sales promotion, fourteen answers were affirmative to the question, "Do you have a sales promotional department?" These companies so answering have been more successful on a per meter basis than those not having such an activity.

Competition

Some interesting answers were brought out to the question, "Who is your biggest competitor?" The automobile dealer was voted by fifteen of the companies as being the most aggressive. Eight answers considered the refrigeration dealer the biggest competitor. Radio shops, musical stores, jewelers, contractor-dealers, furniture stores, and furriers, were all mentioned as selling groups strenuously and successfully competing for furniture stores, and furriers, were all mentioned as selling groups strenuously and successfully competing for the consumer's dollar. Considering the fact that the above mentioned group is so successful it might be well to investigate their sales promotional methods with the idea of bettering ours.

Refrigerator Selling Periods

Spring and Summer were the two seasons of the year given by a decided majority of answers as when refrigeration business was most fruitful. Five bolder spirits were of the opinion that the business was practically equal the year round, and, substantiating these claims they pointed to specialty crews for this type of selling. Countering this opinion, however, is the overwhelming sales records of the Georgia Power Co., Alabama Power Co., Carolina Power & Light Co., Birmingham Electric Co., and Tennessee Electric Power Co., who all held intensive campaign efforts during the spring and summer without specialized sales organization.

Practically all of the companies admit that electric refrigeration should be sold in fall and winter, yet most of them agree that the natural resistance of cold weather is an obstacle which can be overcome only with a promotional expense disproportionate to sales realized.

Refrigerator Advertising

Closely allied with sales promotion is advertising. The average expenditure per unit of sales—all companies—amount to \$9.78 per box. This approximates 3% of the selling price and seems to be generally accepted percentage. Distribution of this expense segregated is as follows:

- Newspaper Display Advertising 74%
- Direct-by-mail 14%
- Poster Display 8%
- Exhibits (Fairs, etc.) 2%
- Novelties 2%

The preponderance of opinion in favor of newspaper advertising bears out general merchandise practice, but there were several who voiced the opinion that a more careful analysis of advertising efforts and the proportioning of coverage among all mediums had resulted more satisfactory for them. As noted, two utilities spent over 90% of their advertising fund in the newspaper medium. One very successful operation split their appropriation equally between newspaper display and direct-by-mail.

Upon analysis it appears that urban operations spend more on newspaper display than do the rural operations, where a quicker appeal is better achieved through direct-by-mail methods. It was rather surprising to find that thirteen companies do not spend any money for exhibits on electric refrigerators. Whether or not they had exhibits, or if there had been no cost allocation against the product is not ascertained.

Generally, the companies appear to be satisfied with the increases shown in the sale of refrigeration. The sensational character of the increases shown from year to year leads many to believe that the average upon which to base conclusions as to the merit of results obtained has not nearly been reached.

(Continued on page 16)

Sales Information

Section I. Tabulation No. 1

Company	Net Sales 1928	Units Sold 1928	Total Domestic Meters	Have You Sales Promotion Dept.
A	\$ 26,659.85	68	7,500	Yes
B	6,000.00	20	1,600	No
C	40,254.73	153	36,289	No
D	29,652.00	87	12,000	Yes
E	126,738.00	501	24,700	Yes
F	28,516.97	108	8,500	Yes
G	6,925.00	19	2,308	No
H	32,611.00	96	8,190	Yes
I	148,636.00	407	50,000	Yes
J	14,000.00	50	10,200	No
K	39,171.34	151	5,260	Yes
L	27,000.00	122	6,000	Yes
M	370,057.35	1228	69,883	Yes
N	750,000.00	3000	96,381	Yes
O	250,000.00	1071	45,000	Yes
P	45,000.00	111	7,937	No
Q	43,065.00	118	6,988	No
R	55,000.00	193	6,450	No
S	81,687.60	219	28,796	Yes
T	6,990.00	19	6,263	No
U	179,000.00	476	61,000	Yes
V	65,000.00	217	19,600	No
W	35,000.00	117	9,000	No
X	15,000.00	57	2,300	Yes
Y	42,010.00	134	18,000	No
TOTAL	\$2,463,974.84	8742	550,125	

Kind of Competition

Section I. Tabulation No. 2

Company	Kind of Competition
A	Automobile dealer
B	Automobile dealer
D	Refrigerator dealer
E	Radio dealer and refrigeration dealer
F	Refrigeration dealer
G	Automobile dealer
H	Refrigeration, automobile, radio, furniture, jewelry and phonograph dealer
I	Refrigeration, automobile, radio, furniture, phonograph and jeweler
J	Contractor dealer and radio dealer
K	Automobile dealer
L	Automobile dealer
M	Automobile dealer
N	Automobile dealer, radio and furniture
O	Refrigeration dealer
P	Automobile, refrigeration and radio
Q	Automobile, radio, refrigeration, furniture, phonograph and jeweler
R	Automobile, furniture, radio and refrigeration
S	Refrigeration
T	Automobile, furniture, radio
U	Automobile, radio
V	Automobile, furniture, radio
W	Automobile, furniture, radio, jeweler, phonograph and refrigeration
X	Refrigeration, and electric contractor dealers
Y	Automobile, jeweler, furrier, refrigeration

Amount and Distribution of Advertising

Section I. Tabulation No. 3

Company	Amount	News Display	Direct Mail	Poster	Exhibits	Novelties
A	\$ 4.00	Not answered				
B	Not answered					
C	Not answered					
D	Not answered					
E	\$12.00	72%	15%	10%	3%	
F	11.25	90%	8%		2%	
G	10.00	70%	20%			10%
H	Not answered					
I	18.00	92%	6%	2%		
J	7.00	75%	20%			5%
K	2.10	85%	2%		2%	1%
L	9.00	90%		5%	5%	
M	4.00	70%	10%			10%
N	9.00	Not answered				
O	15.00	85%	15%			
P	15.00	95%	3%	2%		
Q	8.00	59%		41%		
R	5.00	75%	10%		15%	
S	27.40	75%	3%	20%	1%	1%
T	Not answered					
U	10.00	50%	50%			
V	Not answered					
W	9.00	66%	34%			
X	2.00	75%	25%			
Y	8.00	65%	20%	10%	5%	

Refrigerators in Southeastern Division

Section I. Tabulation No. 4

Company	Domestic Refrigerators in Territory	Central Station Sales	Sales	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Total
A	600	400	200														
B	40	37	3														
C	About 5000	1000	4000														
D	600	100	500														
E	3000	2700	300														
F	1625	275	1350														
G	56	22	34														
H	650	190	460														
I	3500	850	2650														
J	500	70	430														
K	600	500	100														
L	350	150	200														
Total				38,421	12,171	26,250											

(Continued on page 16)

For Every Refrigeration Need

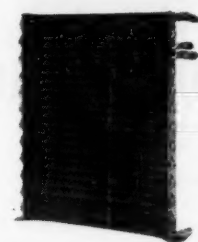
ELECTRO-KOLD dealers realize the big profits of a complete refrigeration line: multiple control for old and new apartment buildings, water coolers, ice makers, ice cream makers, step-in and display refrigeration, fountain refrigeration, household models. Write for our booklet, Electro-Kold Corporation, Spokane, Washington.

ELECTRO-KOLD

Since 1922—The Simplest Electric Refrigerator

FLINTLOCK CONDENSERS

Full Capacity



With Every Unit

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FLINTLOCK CORPORATION

4461 W. Jefferson Ave.
DETROIT, MICH.

BRUNSWICK-KROESCHELL REFRIGERATION

NOTABLE INSTALLATIONS

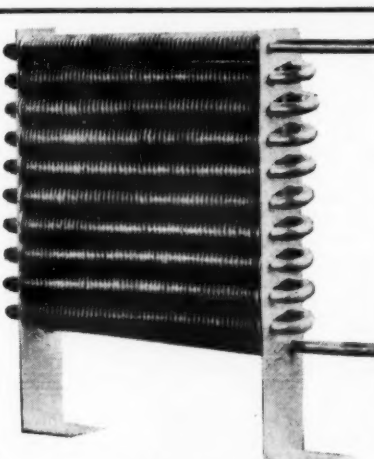


For the WORLD'S LARGEST HOSPITAL GROUP

The selection of Brunswick-Kroeschell Refrigeration for the Columbia Presbyterian Medical Center of New York is another indication of the completeness of the Brunswick-Kroeschell line.

Brunswick-Kroeschell Company manufactures equipment of capacities ranging from 500 lbs. refrigerating effect and up, using ammonia, carbon dioxide and methyl chloride as refrigerants. And back of it all is more than 32 years of continuous and successful application.

BRUNSWICK-KROESCHELL COMPANY
Refrigerating & Ice Making Machinery
NEW BRUNSWICK, N.J. - CHICAGO, ILL.



Specify ROME CONDENSERS

Made of heavy gauge de-oxidized seamless copper tube. One piece construction. Designs for all requirements

Rome-Turney Radiator Co.
ROME, N. Y.



Electric Refrigeration Distributors and Dealers

You need the PEERLESS line of compressors.

PEERLESS units give you a COMPLETE line, ranging from one to ten tons.

PEERLESS Perfected Multiple Apartment System is recognized leader in its field. Full details given on request. Our record warrants your most exacting investigation.

PEERLESS ICE MACHINE CO.
515 W. 35th Street
CHICAGO, ILLINOIS

Utilities Give Service Methods

Analysis of Section II—Service and Installation Data

(Continued from Page 15)

IN past years a great deal has been said about the service and installation of domestic refrigeration. For a time it was an all important subject as the product was largely experimental and service cost amounted to a very substantial figure.

We find that service conditions are generally good and that there seems to be no cause for alarm on this question. Some companies have high service figures but this is admitted by them to be due to local conditions. Very few companies have more than two service men specializing on refrigeration service and there is no data yet available as to the number of machines which will keep one man busy on such service.

On the whole the answers to this question of service cost per year per unit are satisfying, but there were a number of companies which reported "figures not available"; as this cost of servicing is not a fixed charge and can literally run away with itself if not watched, this committee believes that it is sound business for every merchandising manager to know positively this cost on a per unit per year basis.

Installation Costs

Some rather interesting facts were reported on questions regarding installation costs and installation practice. We find that total installation costs vary greatly and range from \$3.25 per unit to \$35.00 per unit. There is practically

Committee Personnel

J. F. DERGE, Merchandise Bureau Chairman, Florida Power & Light Co.

W. B. HARRIS, Chairman, Refrigeration Bureau, Knoxville Power & Light Co.

H. I. BOGGS, JR., Tampa Electric Co.

A. B. COLLINS, Alabama Power Co.

H. M. CAMP, Tennessee Electric Power Co.

I. H. MOREHEAD, Georgia Power Company.

the same variation in different localities on the same make of refrigerator and such costs are evidently largely controlled by local conditions. There is also a decided difference in the distribution of the total cost between labor, material and transportation expenses. We believe, however, that any utility above the following distribution can save money providing a higher figure cannot be justified by the same local conditions.

Labor	Material	Transportation	Total
\$2.60	\$5.00	\$6.00	\$13.60 ea.

This is based on two hours time of a mechanic, a circuit outlet to meter center, and a transfer contract not exceeding \$6.00 per unit.

Circuits

Only ten answers indicated that a separate circuit is being used with a convenience outlet. Undoubtedly this is the best practice in installing an electric refrigerator as the usual circuit operating a refrigerator and other lights or appliances will either blow fuses or "blink the lights when the refrigerator starts.

How Delivered

A decided majority deliver the refrigerator uncrated and chilled after having run it on test from a few hours to two or three days.

Sources of Trouble

The chart on sources of trouble developed by the different makes shows that each section has about the same difficulties. There is but little serious trouble reported and this in itself is gratifying.

We find that service men as a majority are trained in factory schools; that the majority of utilities are satisfied with service conditions as they now exist; that factory guarantees only are maintained with sometimes qualified approval on the length of these guarantee periods.

Service Charge

The majority of utilities charge for service after the guarantee period has passed and most of them add a small profit to such orders. We also find that the general attitude among service departments regarding "orphaned" machines is to maintain them on the same basis as merchandise which is bought through the utility.

It was found that eight of twenty-three companies answering question—"Is cost of free service charged to Merchandise Accounts or to Operation?"—charged such costs to the Operating Department. The majority of practice is to charge free service to the merchandise department and the committee was

Service Information

Section II. Tabulation No. 2

Company	How Many Service Men?	Do They Specialize on Refrigerator Service
A	One	Yes
B	No special service men	No
C	2 electricians at plant	Yes
D	Three	Not answered
E	None	Not answered
F	Four for servicing all appliances	Yes
G	One	No
H	Two	Yes
I	Three	Yes
J	Two	No
K	Two	Yes
L	None at present	Not answered
M	Four	Not entirely
N	2 in Atlanta—1 in each town outside	Yes
O	Three	Yes
P	Two	Yes
Q	One	Yes
R	Not answered	Not answered
S	Two	Yes
T	One	No
U	Six combination service men	One
V	Two	Yes
W	One	Yes
X	One and helper	No
Y	One part time	Yes

Refrigerators—How Delivered to Purchaser

Section II. Tabulation No. 4

Company	Crated or Uncrated	Cold	How Long Run on Test
A	As requested	Yes	24 hours
B	Uncrated	No	No test
C	Uncrated	Yes	8 hours
D	Uncrated	Yes	24 hours at least
E	Crated	No	Not answered
F	Uncrated	Yes	One half day
G	Uncrated	Yes	24 hours
H	Uncrated	When possible	24-48 hours
I	GE crated	Yes	Not answered
J	Kelvinator uncrated	Yes	24 hours or longer
K	Uncrated	Yes	10 hours
L	Uncrated	No	Not answered
M	Both	When possible	One week
N	Crated	No	Not answered
O	Uncrated	Yes	2 days
P	Uncrated	Yes	Several days
Q	Both	Not general practice	Not answered
R	Not answered	Not answered	Not answered
S	Uncrated	Yes	24 hours
T	Uncrated	Yes	48 hours minimum
U	Uncrated	Yes	Depends on rate at which refrigerators are moving
V	Crated	Yes	36 hours
W	Uncrated	Yes	24 hours
X	Uncrated	No	12 hours
Y	Uncrated	Yes	Few hours to 2 or 3 days

Free Service

Section II. Tabulation No. 6

Company	Period of Free Service Warranty	Do You Think Free Service Warranty Too Long or Not Long Enough?
A	24 months	OK
B	12 months	OK
C	12 months	OK
D	24 months	OK
E	12 months	About right
F	24 months	About right
G	Same as factory	Satisfactory
H	12 months	Long enough
I	12 months	About right
J	24 on one make	Very satisfactory
K	12 on another	OK
L	12 months	Agree with 24 mos.
M	23 months	Not answered
N	12 months	Long enough at present
O	24 months	OK
P	12 on one make	OK
Q	24 on another	OK
R	12 on one make	Long enough
S	24 months	OK
T	12 on one make	Sufficient
U	24 on another	Do not believe long
V	Governed by guarantee of manufacturer	guarantee necessary
W	3 months	3 to 6 mos. long enough
X	24 months	OK
Y	12 months	About fair
	24 months	Too long

Section II. Tabulation No. 7

After the Free Service Guarantee Has Past, Do You Charge the Customer With All the Costs of the Call Which Include Material, Labor and Transportation?

Company	Yes	No
A	Yes	
B	Have had no repairs in 2 years of handling	
C	Yes	
D	Yes	
E	Yes	
F	For material only at cost	
G	Yes	
H	No labor charge—cost of parts only	
I	Yes	
J	Yes	
K	Yes	
L	Yes	
M	Yes	
N	Yes	
O	No	
P	Yes	
Q	Yes	
R	In most cases, yes	
S	Try only to get our cost of the service	
T	Yes	
U	Yes	
V	Yes—depends also on nature of trouble	
W	Yes	
X	No	
Y	Yes	

rather surprised to find that as many as eight operating departments were willing to assume this free service within-the-guarantee-period cost.

There also seems to be a trend towards taking the servicing of these appliances out of sales department hands and placing it under the jurisdiction of the operation service department. This has been forced on a number of the companies in order for them to get a better working factor on refrigeration service men since the general improvement of the product. This plan seems to be working out practically and those companies so operating report that they are highly pleased with the results.

(Concluded on Page 17)

Charge for Service—Cost or Profit

Section II. Tabulation No. 8

Company	Charge for Service—Cost or Profit
A	Yes.
B	Profit. Otherwise labor expense tends to be greater than returns.
C	Add profit. To help carry Service Department.
D	List of parts plus labor.
E	Net cost.
F	At cost.
G	Cost. Good public relations from service at cost is worth more than small profit.
H	Cost of parts only.
I	Add a profit. We are entitled to a reasonable profit on service work. We do not think that a reasonable profit will materially increase the cost of service to the customer, therefore will not discourage the use of electric refrigerators.
J	Add a profit. Feel it is legitimate.
K	Add a profit.
L	Profit 30%.
M	Practically cost. Flat rate repair schedule used to equalize costs over entire system.
N	Small profit. There are many calls on which charge is not collectible and we are lucky to break even.
O	Charge list price for parts.
P	Add profit.
Q	25% profit. Minor adjustments and service free. Believe it fair for customer to pay slight profit to cover overhead.
R	Add profit. Contribution for maintaining Service Department. If customer contests charge we try to adjust same to his satisfaction.
S	Cost. To help keep cost to customer at minimum and further promote electric refrigeration sales and also to promote public relations.
T	Add profit. Profit added sufficient to cover cost of overhead.
U	Add profit. Classified as a job order and a regular merchandising item under these conditions a profit must be added in order to avoid a break in on the profit of other merchandising items.
V	Add profit. Since the Merchandise Department stands all of this expense it is necessary to maintain a proper margin of profit.
W	Add profit. Sell the parts at list price plus 75c per hour for labor, no labor under 75c. Revenue not sufficient to defray such expense.
X	Add profit. Do repair work free, charging only for material.
Y	Cost plus 10% minimum charges made as inducement to keep appliance in operation.

Service Departments

Section II. Tabulation No. 9

Company	Do the Service Men Work Under Merchandising or Operating Depts.?	Is Cost of Free Service Charged to Merchandise
A	Service Department	Accounts or Operating?
B	Operating Department	Merchandise
C	Merchandise Department	Merchandise
D	Not answered	Merchandise
E	Merchandise Department	Operating after guarantee period
F	Merchandise Department	Operating
G	Operating Department	Not answered
H	Merchandise Department	Merchandise
I	Operating Department	Merchandise
J	Operating Department	Merchandise
K	Merchandise Department	Operating
L	Operating Department	Merchandise
M	Operating Department	Merchandise
N	Operating Department	Operating
O	Merchandise Department	Operating
P	Operating Department	Merchandise
Q	Merchandise Department	Operating
R	Operating Department	Merchandise
S	Merchandise Department	Operating
T	Both, depending on where located and conditions prevailing	Merchandise
U	Merchandise Department	Not answered
V	Merchandise and Operating	Merchandise
W	Merchandise Department	Operating
X	Operating Department	Merchandise
Y		

"Orphaned" Refrigerators

Section II. Tabulation No. 10

Company	Have You Any "Orphaned" Refrigerators in Your Territory?	Do You Service These Orphans on Same Basis as Those Sold by Your Company?
A	Not sure	We have serviced others with a charge
B	A few	Yes
C	Yes	No
D	Yes	Yes
E	No	Not answered
F	No	No
G	No	Not answered
H	No	Not answered
I	Yes	No, we charge for service
J	Yes	Yes
K	Yes	No
L	Yes	No
M	Not answered	Not answered
N	Practically none	Where possible
O	No	No
P	No	No
Q	Yes	Yes, customer billed on regular basis
R	Very few	Yes
S	Yes	No, not serviced by our company
T	Only one	No
U	Yes, several	Service when it can be conveniently done on regular job order basis
V	Yes	Yes
W	No	Not answered
X	Yes	Yes
Y	Very few	Yes

Section II. Tabulation No. 11

If You Do Not Have Any Orphaned Refrigerators on Your Lines What Would Your Service Policy Be if Such a Condition Was Realized?

Company	Service Policy
A	Not answered
B	Not answered
C	Not answered
D	Not answered
E	We would service them, but would continue trying to trade them in at less than normal merchandising profit.
F	We would probably charge labor and material at cost.
G	Would service them if possible.
H	To service same to the best of our ability in cases of emergency only
I	Not answered
J	Not answered
K	No
L	Give service with 30% profit
M	Render all assistance possible to customer
N	Not answered
O	Charge on regular basis
P	Cost of material and labor plus reasonable profit
Q	Not answered
R	Would furnish cost with nominal charge to customer
S	Not answered
T	Not answered
U	Not answered
V	Not answered
W	List price of parts plus 75c hour for labor
X	Not answered
Y	Give the customer the best service possible and advise them to buy a standard line of appliance in order to receive best service.

READ THIS!

Servel, Inc., says: "Ferro Porcelain Enamels give the user high quality and low cost."

Write for free Ferro booklet.

The Ferro Enamel Supply Company
Cleveland, O.

precision built **Motor, Transmission, Eccentric and Crank Shafts**

Made to your specifications. Send us your blue prints—We will send you our prices.

MODERN MACHINE WORKS, INC.
196 Milwaukee St. MILWAUKEE, WIS.

Survey Brings Out Sales Policies

Analysis of Section III--Sales of Domestic Refrigeration Units

(Concluded from Page 16)

PERTINENT to the sale of domestic electric refrigeration is the very important question of field selling organizations. We find that but four utilities possess salesmen specializing on the domestic unit. All others—and they include the organizations with the most successful records—have combination men who sell all types of electric merchandise. A total of 206 men are so engaged and a decided majority of them work in restricted territories.

However, this is where any agreement on the methods of sales department organization ends.

Compensation of Salesmen

There were almost as many compensation methods as there were reports and the basis for such compensation ranged from \$50.00 per month salary plus 5% commission to straight salaries as high as \$225.00 per month. Some used straight commission less drawing accounts and others straight commissions without drawing accounts. Such commissions run from 10 to 15 percent of the f. o. b. factory list.

In answer to this question regarding the monthly remuneration of salesmen on their refrigeration sales there were several of the companies who were unable to supply such data, but those reporting showed such a wide diversity that no attempt was made at averages. Average sales per year per man run from as low as \$600.00 to as high as \$20,000 in the case of specialty refrigeration salesmen reported by Company "E".

Prospect Sources

Answers to the questions regarding prospect sources are interesting and warrant consideration.

We find that practically all of the salesmen report that first cost is the biggest single factor offered by the customer as a resistance to purchasing an electric refrigerator.

At this point the committee wishes to call your attention to announcements coming from the national organization concerning the "Food Preservation Program." It is thought that through this program the need for proper refrigeration can be better sold. Subsequent announcements concerning details of this work will be made at an early date.

Exchanges and Premiums

Very few utilities have made a practice of old ice box allowances and not many are offering premiums. Most opinions were that the offering of premiums or old box allowances constituted bad practice as private dealers were unable to make similar offers.

Time Payments and Terms

Down payments average 10% but most companies make concessions during campaign period. One company has the very excellent plan of \$25.00 down on sales up to \$400.00 and \$50.00 down on sales exceeding that amount. In this way the resistance of higher down payments on different models of the same size or models close in size is eliminated and is at the same time economically sound.

Deferred payment plans run from 12 to 30 months, averaging about 22 months.

Only two companies make no carrying charge on deferred payments and such percentages are controlled entirely by the conditions of the local money market. Cash discounts are generally allowed from term prices and no such discount exceeds ten percent.

Because of the diversity of methods a better idea of the answers to questions in this section can be had by checking through the following details.

the SAFE Refrigerant

Write today for full details of this remarkable, PROVEN, SAFE refrigerant.

ARGONIUM

Sales resistance is swept away and refrigerant problems solved at one stroke by the adoption of Argonium.

- Easy to detect and locate leaks.
- Impossible to draw air and moisture into the system.
- Lubrication troubles eliminated.
- No oil trapping problem.

AMERICAN ICE MACHINE CO.
Glendale, Calif.

Time Payment Policies

Section III. Tabulation No. 5

Company	What is Your Down Payment Requirement	What Rate Do You Charge Deferred Payment Customers? Is This Flat Rate or Simple Interest?
A	10 to 25%	10% Flat rate
B	25%	None Flat rate
C	10%	10% Flat rate
D	10%	8% Flat rate
E	5 to 10%	Approx. 7% G. M. A. C.
F	5%	None Flat rate
G	10% minimum	8% Flat rate
H	\$10.00	10% Flat rate
I	5%	6% Flat rate
J	10%	6% Flat rate
K	10%	10% Not answered
L	10%	10% 12 mos. Flat rate
M	10%	14% 12 mos.
N	Varies	15% 24 mos.
O	10%	7% Flat rate
P	10%	8% Not answered
Q	10%	Simple interest
R	10%	Simple interest
S	10 to 20%	10% Flat rate
T	\$25 on sales to \$400	8% and 12% Flat rate
U	\$500 above \$400 18 months	5% Flat rate
V	20%	Not answered
W	10%	8% Simple interest
X	10%—\$10 on campaigns	7% Flat rate
Y	10% regular, smaller	10% Simple interest
		6% Flat rate

Free Service

Section III. Tabulation No. 6

Company	What is Your Maximum Payment Plan	What is Your Discount for Cash? Do You Quote Net or Term Prices?
A	18 mos.	Not answered Net
B	12 mos.	5% Term
C	18 mos.	10% Term
D	24 mos.	8% on balance Term
E	24 mos.	5% Net
F	19 mos.	5% Term
G	18 mos.	None Net
H	30 mos.	10% Term
I	20 mos.	6% Term
J	24 mos.	None Net
K	18 mos.	10% Term
L	24 mos.	None Net
M	18 mos.	7% Both
N	30 mos.	None Net
O	18 mos.	None Net
P	24 mos.	8% Term
Q	24 mos.	8% Net
R	24 mos.	10% Term
S	18 mos.	None Net
T	18 mos.	None Net
U	12 mos.	8% Both
V	18 mos.	None Both
W	24 mos.	Approx. 7% Term
X	17 mos.	None Net
Y	24 mos.	2% List

Sales Facts

Section III. Tabulation No. 3

Company	Sales Per Man Per Year on Dom. Refrigeration?	Average Monthly Remuneration of Your Dom. Refrigeration Salesmen Per Man?
A	Not answered	Not answered
B	Not answered	Not answered
C	\$10,063.62	\$83.86
D	No information	\$125.00
E	\$20,000.00	\$210.00
F	5,700.00	\$23.00
G	7,035.00	Not answered
H	Not answered	Not answered
I	\$4,000.00	Not answered
J	2,400.00	Not answered
K	Not answered	\$150.00
L	\$10,000.00	\$225.00
M	Not answered	Not answered
N	Do not know	Not answered
O	Not answered	\$180.00
P	Not available	Not answered
Q	\$6,000.00	Not answered
R	\$5,000.00	Not answered
S	Not answered	Not answered
T	Not answered	Not answered
U	Not available	Not answered
V	Not available	Not answered
W	\$800.00	Not answered
X	\$7,500.00	\$80.00
Y	\$7,500.00	\$75.00

Premiums and Allowances

Section III. Tabulation No. 4

Company	Do you Have Allowances For Old Boxes?	Do You Give Premiums? If So, What Form do They take?
A	No	No
B	No	No
C	No	Yes, silverware and glassware
D	No	Yes, Recipe Book
E	Discontinued the practice	No
F	Yes, during campaign only	No
G	No	No
H	No	Not to date
I	No	Conducted one campaign and gave \$10 worth of electrical merchandise
J	No	No
K	No	Not answered
L	No	Haven't so far. Expect to this year
M	On campaigns	No
N	Tried it once	Various
O	Yes	No
P	No	No
Q	No	No
R	Yes	No
S	Not regularly	Not answered
T	No	No
U	No	No
V	No	No
W	No	No
X	No	No
Y	Not regularly	No

SUPERIOR REFRIGERATOR CASTINGS

FLINT FOUNDRY COMPANY

Division of
General Foundry & Machine Company
FLINT, MICH. MARSHALL, MICH.

Sales Organization

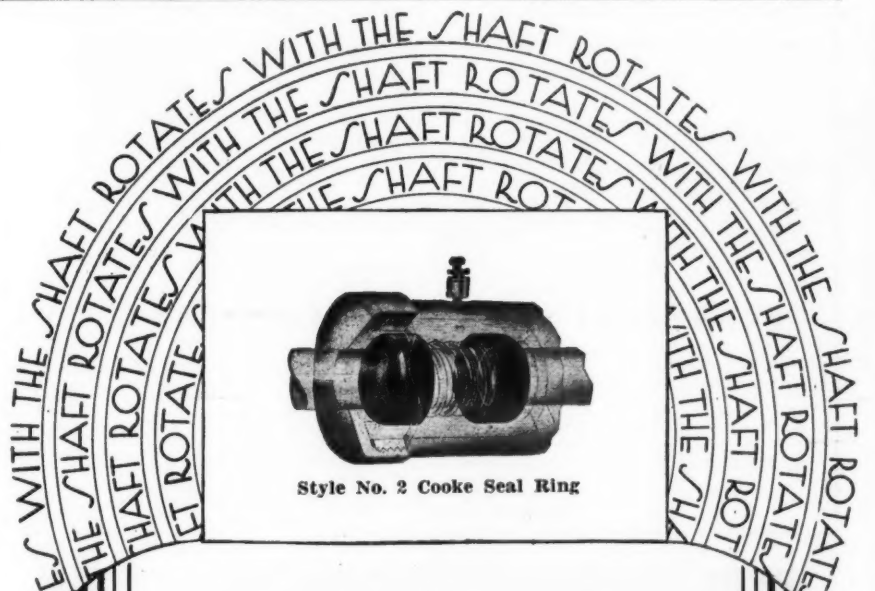
Section III. Tabulation No. 1

Company	Number of Domestic Refrigeration Salesmen	Do They Specialize on This?	Restricted Territory or Free Lance
A	6 combination gas and electric	No	Restricted
B	None	No	Not answered
C	4	No	Free lance
D	1 to 5	Yes	Free lance
E	4	Yes	Free lance
F	5	Yes	Restricted
G	1	No	Not answered
H	3 to 6	No	Restricted
I	25	No	Free lance
J	6	No	Free lance
K	5	No	Restricted
L	3	No	Restricted
M	30	No	Restricted
N	Not answered	No	Restricted
O	27	No	Restricted
P	1 full time, 5 part time	Only one	Not answered
Q	6	No	Restricted
R	2 full time	Yes—2 men	Not answered
S	20 part time	No	Free lance
T	4	No	Restricted
U	17	No	Both
V	10	No	Both
W	5	No	Free lance
X	2	No	Restricted
Y	4 ranges and refrigerators	No	Restricted

Compensation and Training

Section III. Tabulation No. 2

Company	Basis of Salesmen's Remuneration	Do you Hold Regular Training Classes for Refrigerator Salesmen
A	Rural salesmen—\$75.00 a month plus 10% City salesmen—\$75.00 a month plus 8%	Yes
B	Not answered	No
C	10% straight commission	Yes
D	Salary	Yes
E	10% straight commission	No
F	\$75 month plus 5%	Morning sales meetings
G	Salary	No
H	\$50 month plus 10%	Manufacturers sales course at irregular periods
I	15% straight commission	Sales meetings mornings
J	Salary and commission	No
K	10% commission	Yes
L	Salary and commission	Small, but expect to enlarge
M	\$65 month plus 7%	Not answered
N	Salary and commission	Two a year
O	\$50.00 month plus 5%	Yes
P	Salary	No
Q	Salary and commission	No
R	Commission with drawing acct.	Yes
S	All salesmen on straight salary of \$180 to \$225 per month	No
T	\$75 month plus 8%	Yes
U	\$25.00 to \$25 plus 10%	Yes
V	Straight commission 12 1/2%	Weekly sales meetings—GE Course
W	\$75 month plus 7%	Yes
X	Salary plus 7%	Yes
Y	12% to 15%	Yes



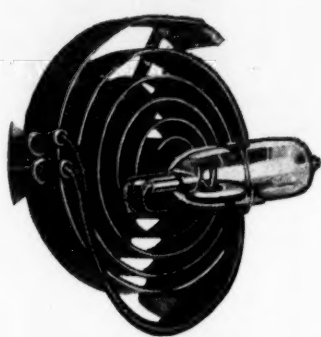
First Cost Is Its Only Cost

Not only does the Cooke Seal Ring cost no more than other less efficient seals, but it saves you money before and after installation. Before, because it is easier to install and requires less preliminary machining on the product itself. After, because it never needs service, doesn't wear out, doesn't score the shaft. Better designed, it adjusts itself automatically for any pressure—and never leaks. Other leading manufacturers swear by it. Get all the facts today.

COOKE Seal Ring

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Cooke Seal Ring,
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Dept. R.
Please send me your free booklet without obligation.
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Direct Action for Accurate Control

BECAUSE its Con-Tac-Tor is mounted directly on a bi-metallic spiral so that there is no possibility of lost motion through a link mechanism, the No. 149 Airswitch provides an unusually accurate and reliable control for butcher boxes, florists cabinets, cold storage rooms and other refrigerating installation in which it is necessary to keep comparatively large volumes of air at specified cold temperatures. This principle of direct action is important in another way in cases where the temperature to be carried is likely to cause the formation of frost on and in the instrument. There are no bearings, no parts that move in relation to parts they touch. Consequently frost cannot retard or prevent proper operation of the Airswitch.

In its ivory finish with black and red face plate, the Airswitch is far more attractive to the eye than the ordinary control of its type. All metal parts are carefully protected by plating or enamel so that there can be no corrosion even in the presence of moisture or vapors which are often encountered.

The wide range of temperature adjustments makes it possible to adapt the No. 149 Airswitch to a wide variety of uses. Installation is extremely easy, the instrument being built for surface mounting.

The No. 149 Airswitch is but one of a varied and complete line of refrigeration controls manufactured by this company. Full details about this instrument or instruments for controlling refrigerating plants by pressure or remote temperature controls will be furnished gladly at your request.



TIME-O-STAT CONTROLS COMPANY

ELKHART, INDIANA

Successor to

Absolute Con-Tac-Tor Corporation
Leachwood Company
Cramblet Engineering Corporation

"Is This Cabinet Insulated?"

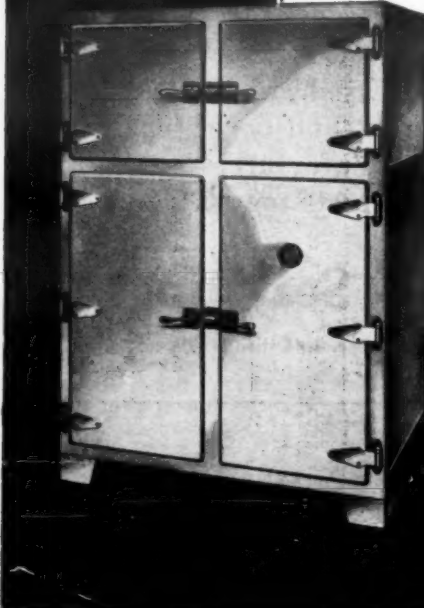
If customers ask this question about a cabinet insulated with Novoid Corkboard Insulation you can tell them, "Yes, this cabinet is insulated with pure Novoid Corkboard. This corkboard comes from the largest corkboard factory in Spain, the home of the finest cork wood. It will last as long as the cabinet itself."

If you would like to have a sample of Novoid Corkboard Insulation and a descriptive bulletin describing its manufacture write to—

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Chicago Health Department Proposes

KEGEL ORDINANCE BEING CONSIDERED BY HEALTH COMMITTEE

This ordinance was submitted to the Health Committee of the Chicago City Council, Aug. 9, by Alderman Eaton, chairman of the subcommittee, as his minority report. (See page 2 for story).

Dr. Arnold H. Kegel's Ordinance Regulating Domestic Refrigeration
August 9, 1929.

An Ordinance

Regulating the design, construction and installation of refrigerating systems circulating any volatile substance to produce refrigeration.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CHICAGO:

Section 1. That the Chicago Code of 1922 be and is hereby amended by adding the following article immediately after Section 2156 of Article XXXV:

Article XXXVA—Domestic Refrigerating Systems

Section 2156a. DOMESTIC REFRIGERATING SYSTEMS—REGULATED AND INSPECTED—DEFINITIONS. It shall be unlawful for any person, firm or corporation to place, install, cause to be installed, maintain, sell, offer for sale or keep with the intention of selling for use in the City of Chicago, contrary to the provisions of this Article any refrigerating system, machine, plant, unit or major part thereof which supplies refrigeration in any place of human habitation; by circulating to the material or space to be refrigerated any ammonia, butane, carbon dioxide, ethane, ethyl chloride, isobutane, methyl chloride, propane, sulphur dioxide, or any other substance declared poisonous, noxious, irritating or dangerous to health by the Board of Health.

For the purposes of this ordinance, the following definitions shall apply:

(a) "APPROVED," approved by the Commissioner of Health.

(b) "DIRECT METHOD OF REFRIGERATION," one in which the refrigerant is circulated to the material or space refrigerated.

(c) "DOMESTIC REFRIGERATION," refrigeration or refrigerated space in a place of habitation, supplied by the direct method of refrigeration.

(d) "EVAPORATOR," a container in which a refrigerant is expanded or vaporized to produce refrigeration.

(e) "INDIRECT METHOD OF REFRIGERATION," one in which a liquid (such as brine) cooled by the refrigerant, is circulated to the material or space refrigerated.

(f) "IRRITANT REFRIGERANT," any refrigerant which attacks the eyes, throat or lungs, as ammonia and sulphur dioxide.

(g) "MODEL OF UNIT SYSTEM," a type of unit refrigerating system in which all the parts used for the retention of refrigerant bears the same relation to the others and also in which every part used for refrigerant retention is similar to and equal in strength, workmanship and quality to the parts shown in the plans and specifications filed with the Commissioner of Health.

(h) "MULTIPLE SYSTEM," a refrigerating system in which the refrigerant is delivered from a common source to two or more separate refrigerators or refrigerated spaces or containers, each containing one or more evaporators.

(i) "PLACE OF HABITATION," any room or rooms and/or connecting space in which a person, family or group of persons reside and/or sleep, including transient occupancy for such purposes.

(j) "POISONOUS REFRIGERANT," a refrigerant which when inhaled in a concentration of one per cent or less by volume causes structural alterations or functional disturbances in man or experimental animals.

(k) "PRESSURE-IMPOSING ELEMENT," every device or portion of the equipment used for the purpose of increasing the pressure upon the refrigerant.

(l) "REFRIGERANT," the chemical agent used to produce refrigeration.

(m) "REFRIGERATING SYSTEM," a combination of apparatus in which a refrigerant is circulated for the purpose of extracting heat.

(n) "REMOTE SYSTEM," a direct system of refrigeration having not more than one evaporator in which the pressure imposing element is installed separately from the cabinet or box in which the evaporator is located.

(o) "UNIT SYSTEM," one which can be removed either with, or separately from, the space refrigerated without disconnecting a refrigerant-containing part.

Section 2156b. PERMIT AND APPROVAL REQUIRED—PLANS AND SPECIFICATIONS. Plans for every refrigerating system using the direct method of refrigeration to be installed or maintained in any place of human habitation in the City of Chicago, shall be submitted to the Commissioner of Health for examination and approval; and no such system or any major part thereof shall be installed unless a permit has been issued by the Commissioner of Health authorizing such installation, excepting that for the installation of electrical equipment, a permit for which shall be secured from the Bureau of Electrical Inspection in accordance with the provisions of Section 1638 of the Revised Municipal Code.

Provided, however, that only the general plans and specifications for each model of unit systems may upon application of the manufacturer or distributor be submitted for examination and approval. Based on the inspection and approval of such models of unit systems, a general permit shall be issued by the

Commissioner of Health, authorizing the sale, offering for sale, keeping with the intention of selling, supplying, placing or installing of such approved models in places of habitation in the City of Chicago.

Section 2156c. PERMIT AND INSPECTION FEES. Permit and inspection fees in accordance with the following schedule of rates shall be paid in advance to the City Collector for the issuance of a permit and inspection of every domestic refrigerating system for which such permits or inspections are required by this Article.

Schedule of Permit and Inspection Fees.

1. General permit and inspection fees for each model of unit systems—One Hundred dollars (\$100.00) for each model.
2. Single unit systems not covered by a general permit and inspection—Five dollars (\$5.00) for each unit.
3. Remote systems, where the pressure-imposing element and evaporator are both of an approved unit system—Two dollars (\$2.00) for each such installation.
4. Other remote systems—Five dollars (\$5.00) for each such installation.
5. Multiple systems—Ten dollars (\$10.00) for each pressure-imposing element and fifty cents (\$0.50) for each evaporator.

Section 2156d. INSPECTION TESTS AND APPROVAL. (a) Every domestic refrigerating system using the direct method of refrigeration shall be subject to inspection by the Commissioner of Health with a view to determining that all parts thereof are tight and constructed in such a manner as to prevent the escape of any gases or substances, poisonous, noxious, irritating or dangerous to health or injurious to foods, condiments or drinks.

(b) It shall be the duty of every person, firm or corporation installing any domestic multiple or remote refrigerating systems to apply the tests required by this Article.

(c) Tests of any domestic multiple or remote refrigerating system shall be made in the presence of an inspector of the Department of Health and shall be applied to every refrigerating system or parts thereof installed, before being put into use. Tests of installations in new buildings shall be made before the piping and connections of the system are covered up or made inaccessible. It shall be the duty of every person, firm or corporation installing domestic multiple or remote refrigerating systems, as aforesaid, to notify the Commissioner of Health whenever any system has reached the stage of construction where it is ready for inspection and tests.

DR KEGEL'S PROPOSED SAFETY TEST

No direct refrigerating system other than approved unit systems, containing a refrigerant that is flammable, poisonous, noxious, irritating, dangerous or detrimental to health shall be installed or maintained in any place of human habitation, unless such system is tested and approved by the Commissioner of Health and found to be so designed, constructed and maintained that not more than two pounds of refrigerant can escape or leak therefrom during a period of twelve hours or less into any place of habitation through any possible leak or rupture of the system, or more than ten (10) pounds can escape or leak therefrom during a period of twelve hours or less into any basement, cellar or uninhabited part of the building in which such system is located.

(d) Each model of unit domestic refrigerating systems shall be inspected and approved by the Commissioner of Health as to the provisions of this Article and protection against danger to health before any unit of such model is sold, offered for sale or displayed with the intention of selling; and each such unit shall be tested by the manufacturer and made to comply with the provisions of this Article.

(e) Inspections and tests shall be made by the Commissioner of Health of specimens on the market of every such unit system, covered by a general permit, manufactured, sold, or offered for sale for use in the City of Chicago; and it shall be unlawful for any person, firm or corporation to sell, offer for sale, display with the intention of selling, install or place any such unit system that does not correspond in every detail and respect with the model approved by the Commissioner of Health as aforesaid.

(f) The testing of every domestic refrigerating system shall include a vacuum test of the complete piping system, preferably with the evaporators installed, but valves thereon may be closed to prevent withdrawal of the refrigerant. Under this test a partial vacuum of twenty inches of mercury shall be produced within the system and shall be held for a period of at least one hour, with no appreciable drop.

(g) Every part of every domestic refrigerating system, except pressure gauges and control mechanism, shall be designed, constructed and assembled to withstand safely and without injury the following required minimum test pressures, which shall be applied after the vacuum tests. These test pressures shall be held by every refrigerating system under test for a period of at least eighteen (18) hours without any appreciable fall:

TEST PRESSURE IN POUNDS PER SQUARE INCH

Refrigerant Used	High Pressure Side	Low Pressure Side
Carbon Dioxide	1500	750
Ethane	1100	550
Ammonia	300	150
Propane	250	125
Methyl Chloride	175	125
Sulphur Dioxide	135	100
Isobutane	135	100
Butane	100	50
Ethyl Chloride	100	50

For other refrigerants not herein enumerated, the Board of Health of the City of Chicago shall determine the test pressures to be applied.

(h) The Commissioner of Health shall, upon application, issue to the owner of domestic multiple or remote domestic refrigerating systems complying with the provisions of this Article a Certificate of Approval, based upon the inspection of the system.

The Commissioner of Health shall, upon application to the manufacturer or distributor of any model of unit systems or models of unit systems complying with the provisions of this Article, a Certificate of Approval, based upon the inspection of the type or model.

Certificates of Approval for models of unit systems may be copied by the manufacturer or distributor and a copy attached to or delivered with each such refrigerating plant sold or supplied.

Section 2156e. REFRIGERANTS. Permits issued for the installation and maintenance of refrigerating systems and Certificates of Approval issued for such systems, shall state the amount, composition or constituents of the refrigerant to be used. All poisonous or toxic refrigerants used in any direct system of refrigeration shall have a distinct and easily recognizable odor or characteristic irritating properties in the minimum concentrations in air at which they are found to be poisonous to the experimental animal after 12 hours' exposure. Every refrigerant used must be approved by the Commissioner of Health as to the aforesaid properties.

It shall be unlawful for any person, firm or corporation to use or cause to be used any refrigerant in any refrigerating system in excess of the amounts or differing in composition from that stated in the application, permit or Certificate of Approval.

Every person, firm or corporation servicing, or responsible for the servicing of refrigerating systems, shall write or indicate on the instruction card required to be posted in proximity to each pressure-imposing element as hereinafter provided, every amount and kind of refrigerant originally placed in, and subsequently added to such refrigerating system, and the date on which the refrigerant was added, together with the name and address of the person who added it.

It shall be the duty of every person, firm or corporation servicing or responsible for the servicing of any refrigerating system, to notify the Commissioner of Health immediately by telephone, followed by confirmation in writing at once, and also the owner or responsible occupant of the premises on which such refrigerating system is located, also in writing, in every case where it is found that any refrigerating system lost more than two per cent of its refrigerant within 30 days or shorter periods.

Refrigerants circulated in domestic refrigerating systems using the direct method of refrigeration shall not be subjected to high temperatures, admixture of other substances, or other influences which would tend to alter the composition of such refrigerants.

Section 2156f. EVAPORATORS—LOCATION, SHIELD AND PROTECTION. Every evaporator of every domestic refrigerating system using the direct method of refrigeration, unless constructed in an approved manner of sufficient strength to prevent mechanical injury, shall be effectively shielded so as to protect it against such injury. Such shielding shall be rigidly constructed in an approved form, and shall surround and enclose the evaporator, expansion coils or other refrigerant-containing parts of the evaporator, and shall not be suspended or supported by the refrigerant-containing parts of such evaporators.

Support for the trays and similar vessels shall be constructed in such a manner that any force used in the removal of the trays is not applied to any refrigerant-containing part of the evaporator.

Every evaporator of every refrigerating system shall be firmly anchored or secured in such a manner as to make it immovable.

Section 2156g. MULTIPLE AND REMOTE SYSTEM REFRIGERATOR CABINETS TO BE SECURED IN PLACE. Every refrigerator cabinet, box, casing or refrigerated space containing or enclosing any evaporator of any domestic multiple or remote refrigerating system shall be firmly and securely anchored and fixed to a wall, floor and/or other immovable object, in such a manner as to hold such refrigerator, box or casing enclosing the evaporator securely in place.

Section 2156h. LIMITATIONS AS TO USE.

(a) No direct refrigerating system other than approved unit systems, containing a refrigerant that is flammable, poisonous, noxious, irritating, dangerous or detrimental to health shall be installed or maintained in any place of human habitation, unless such system is tested and approved by the Commissioner of Health and found to be so designed, constructed and maintained that not more than two pounds of refrigerant can escape or leak therefrom during a period of twelve hours or less into any place of habitation through any possible leak or rupture of the system, or more than ten (10) pounds can escape or leak therefrom during a period of twelve hours or less into any basement, cellar or uninhabited part of the building in which such system is located.

(b) Whenever any multiple refrigerating system is installed, no pressure-imposing element, condenser, liquid receiver, or distributing valves shall be installed above the first floor, except on the top floor or roof, and every such part shall be placed in a machinery room. Such machinery room shall have tight walls, shall have no communication with any other part of the building, and shall be entered and ventilated from the outside.

Section 2156i. CONSTRUCTION OF REFRIGERATING SYSTEMS. (a) Every domestic refrigerating system within the provisions of this Article and containing a refrigerant that is noxious, poisonous, dangerous or detrimental to health, irritating and/or flammable, shall be designed, constructed, installed, placed in operating condition and maintained so that the kind of materials the strength of the mate-

New Safety Test for Multiple Systems

rials, the quality of workmanship, and all construction affecting the retention of the refrigerant are such as to prevent any escape of the refrigerant in any building or to the outside air in such quantities that a condition dangerous or detrimental to health may result.

(b) All piping and tubing containing refrigerant shall be supported in a rigid and durable manner so as to prevent excessive vibration and strains at joints or connections.

(c) All refrigerant-containing parts of every domestic refrigerating system shall be so installed, rigidly supported, secured or protected and maintained that they will not leak and cannot be disturbed without the aid of tools, or undue force.

(d) All refrigerating piping, tubing, fittings and valves shall be of material suitable for the refrigerant used.

(e) No refrigerant line shall be located in any stairway, public hallway, elevator, dumb-waiter, or any other shaft containing moving objects.

(f) No pipe or fitting connected with or conveying the public water supply for cooling or for any other purpose shall be so connected or arranged that the purity of the public water supply may be impaired. Water used for removing heat from a refrigerating machine system shall not thereafter be used for drinking purposes.

(g) The Board of Health shall have the power to formulate as frequently as is deemed necessary rules and regulations so as to establish minimum standards to conform with the requirements of paragraphs (a) through (f) inclusive of this Section.

Section 2156f. OPERATING PRECAUTIONS. (a) It shall be the duty of every owner, agent, lessee, or tenant, who is in charge and control of the premises wherein any refrigerating system is located, to assure that the refrigerating system is properly maintained and operated at all times so as to prevent the escape of any refrigerant which is flammable, poisonous, noxious, irritating or dangerous and detrimental to health.

(b) Whenever the refrigerant is drained from any domestic refrigerating system, it shall be discharged into a suitable absorbent or container commonly used for this purpose.

(c) Containers shall not be connected to the system during period of charging or withdrawing the refrigerant.

(d) In testing with air pressure, care shall be taken to prevent the temperature in discharge pipe from exceeding one hundred and thirty (130) degrees Fahrenheit at any time.

(e) Whenever the losses from a domestic refrigerating system are such as to endanger the health or lives of the human occupants of any room or structure in which such refrigerating system, or any part thereof, is located, it shall be the duty of the owner, agent, lessee or tenant in responsible charge and control of such refrigerating system, to apply or cause to be applied such pressure, vacuum and other tests as the Commissioner of Health may direct.

Section 2156k. INSTRUCTIONS AND REFRIGERANT CHARGES TO BE POSTED. (a) It shall be the duty of every person, firm or corporation, maintaining, operating or responsible for the maintenance of operation of any domestic refrigerating system, to post and keep conspicuously posted, on or within five feet of the pressure-imposing element of such system, a card giving operating directions for such system, including precautions to be observed in case of a breakdown or leak. The following shall be included in the instructions and information listed on such cards for domestic multiple refrigerating systems using the direct method of refrigeration:

1. The telephone number of the Department of Health, and instructions to notify the Department of Health immediately in case of leakage or other emergency.
2. The name, address and telephone number of every engineer or operator in charge.
3. The location of the nearest fire alarm box.
4. The name, address and telephone number of a physician to be called in case of emergency.
5. Instructions for shutting down the system in case of emergency.
6. The name, address and day and night telephone number for service.
7. The date, amount and kind of refrigerant placed in the system at the time of initial charging and every subsequent recharging, and the name and address of the person charging or recharging the system.
8. A statement as follows: "Every person servicing, charging or recharging any refrigerating system who finds that more than two per cent of the refrigerant contained in the system has escaped, leaked out or been lost during thirty days or a shorter period of time, shall notify the Commissioner of Health immediately, by telephone, followed by confirmation in writing at once of this fact."

(b) The manufacture of every unit type or model of domestic refrigerating system shall mark upon the name-plate thereof the amount and kind of refrigerant contained within the system. Every domestic remote or multiple refrigerating system shall have the name of the refrigerant painted or affixed in a permanent manner to the pressure imposing element and/or to the piping in proximity thereto.

Section 2156l. MAINTENANCE AND INSPECTION OF PREVIOUSLY INSTALLED REFRIGERATING SYSTEM. (a) Every domestic refrigerating system installed prior to the passage of this ordinance and found to have any features that are dangerous, hazardous or detrimental to health, or which presents any fire or explosion hazards, shall be made to comply with the requirements of this Article at once.

(b) All refrigerating systems using the direct method of refrigeration installed in any residence, including all unit systems installed in sleeping rooms, shall be made to conform with all the provisions of Section 2156e of this Article within thirty (30) days after this ordinance is in force and effect.

(c) No second-hand domestic refrigerating system more than one (1) year old shall be sold, offered for sale, placed or installed for use in the City of Chicago unless such system has been inspected and approved by the Commissioner of Health, provided, however, that such second-hand refrigerating systems less than one (1) year old shall comply with the provisions of this Article relating to newly manufactured or installed refrigerating systems.

(d) The Commissioner of Health shall make an inspection of all domestic multiple refrigerating systems including all re-

frigerating systems maintained in sleeping rooms; installed prior to the passage of this ordinance, and shall have power and authority to stop the operation of any refrigerating system which is found to be dangerous, hazardous or detrimental to health.

(e) The fees for such original inspection of domestic refrigerating systems, installed prior to the passage of this ordinance, shall be the same as is provided for new systems in Section 2156c.

(f) Every domestic multiple refrigerating system, operated, installed or maintained in the City of Chicago, shall be inspected annually by the Commissioner of Health. Inspection fees shall be paid annually in advance to the City Collector of Chicago during the first week in January for such annual inspections in accordance with the following schedule:

Schedule of Annual Inspection Fees. Five dollars (\$5.00) for each pressure-imposing element and twenty-five cents (\$0.25) for each evaporator.

Section 2156m. REVOCATION OR WITHDRAWAL OF PERMITS AND CERTIFICATES OF APPROVAL. Any person, firm or corporation failing or neglecting to build or install any domestic refrigerating system in accordance with the plans approved by the Commissioner of Health shall be refused all further permits for such installations until all previous systems for which permits were issued are completed and installed in accordance with the provisions of this ordinance.

The Commissioner of Health shall have the right to revoke any permit or Certificate of Approval whenever he finds that the requirements of this ordinance are not complied with. It shall be illegal for any person, firm or corporation to display or attach to any refrigerating system any copy of a Certificate of Approval where the original certificate has been revoked by the Commissioner of Health.

The Commissioner of Health shall have the power and authority to stop construction and operation of any domestic refrigerating system, or any part thereof, whenever he has evidence tending to show that there exists, or will exist, an escape of refrigerant from any such system that will be poisonous, noxious, irritating, or dangerous and detrimental to the health of the human occupants of the room or structure in which any such system, or part, is located, or that there exists or will exist any fire or explosion hazard.

Section 2156n. POLLUTION OF FOOD AND AIR SUPPLY BY REFRIGERANTS PROHIBITED. (a) No evaporator, expansion coil, or any part of a refrigerating system containing a refrigerant that is poisonous, noxious, irritating or dangerous to health, shall be placed or located directly in any article of food, confection, condiment or drink.

(b) No refrigerant-containing parts of a refrigerating system in which there is used a refrigerant that is poisonous, noxious, irritating or dangerous to health shall be placed in any part of the mechanical ventilating system through which air passes to be subsequently delivered to a space or spaces used or intended to be used for human occupancy.

Section 2156o. PENALTY. Any person, firm or corporation violating any of the provisions of the foregoing sections of this ordinance shall upon conviction be fined not less than twenty-five dollars (\$25.00), nor more than two hundred dollars (\$200.00) for each offense.

PORTLAND PLANNING CODE FOR MULTIPLES

Throwing safeguards around electric refrigeration in apartment houses and other large buildings in Portland, Ore., is being urged by members of a special committee headed by J. G. Peck.

The proposed ordinance provides the code shall not apply to installations using as refrigerants ammonia or carbon dioxide, and that it shall apply only to multiple refrigeration installations.

It requires obtaining of permits from the bureau of buildings before any multiple refrigeration system is installed. The fee for the first evaporator of a system is placed at 50 cents, and for each additional evaporator 25 cents, with the minimum fee at \$1.00.

A vacuum test must be made of the complete piping system, and it would be unlawful to operate a multiple refrigerating system until it has been inspected.

It is provided that exposed refrigerant piping must be marked or labeled plainly, so as to indicate its content at intervals of not over 25 feet, with metal tags, having indented or raised lettering.

No compressor of a multiple refrigerating system shall be located under a stairway or within any room within which there is stored combustible material, or less than 10 feet from a dumb waiter shaft or elevator shaft.

OKLAHOMA CITY ADOPTS MULTIPLE CODE ASKED BY REFRIGERATION MEN

A report from Oklahoma City, Okla., states that an ordinance governing multiple installations was adopted by that city on July 16. The ordinance was worked out by the city engineer and representatives of Frigidaire, Copeland, Servel, Sure-Cold, and Absopure. It is believed by these people in Oklahoma City, that this action sets a precedent for the industry by being the first ordinance to be adopted by a city at the request of those engaged in the refrigeration business.

An annual license is required of any person, firm, or corporation, installing, altering, or repairing multiple refrigeration systems. Plans and specifications of the general character and use of

CHICAGO ALDERMEN WHO WILL DECIDE ORDINANCE BATTLE

The following list contains the names and addresses of the 50 Aldermen who comprise the Chicago City Council. Members of the Health Committee are identified with one asterisk (*), while two asterisks (**) indicate a member of the subcommittee which conducted preliminary hearings on the proposed new refrigeration ordinance.

WILLIAM HALE THOMPSON
Mayor

Patrick Sheridan Smith, City Clerk
Edward J. Padden, Chief Clerk

- Ward Alderman and Address**
- 1—John J. Coughlin, 118-120 N. La Salle Street.
 - 2—L. B. Anderson, 3347 S. Michigan Avenue.
 - 3—Robert R. Jackson, 611, 3743 S. State Street.
 - 4—B. A. Cronson, 621, 77 W. Washington Street.
 - 5—**Charles S. Eaton, 1128, 7 S. Dearborn Street.
 - 6—Guy Guernsey, 1515, 111 W. Monroe Street.
 - 7—*Clement A. Nance, 1960 E. 71st Street.
 - 8—*Wm. D. Meyering, 736 E. 83rd Street.
 - 9—Sheldon W. Govier, 11054 Cottage Grove Avenue.
 - 10—Wm. A. Rowan, 3022 E. 92nd Street.
 - 11—John P. Wilson, 2920 Lowe Avenue.
 - 12—*B. J. Zintak, 3663 S. Paulina Street.
 - 13—Jos. B. McDonough, 551 W. 37th Street.
 - 14—Wm. R. O'Toole, 1102 W. 55th Street.
 - 15—Thomas F. Byrne, 6217 S. Washburn Avenue.
 - 16—*Terence F. Moran, 5641 Loomis Boulevard.
 - 17—James G. Coyle, 6640 Stewart Avenue.
 - 18—*Walter W. Morris, 6417 S. Halsted Street.
 - 19—O. E. Northrup, 559 W. 81st Street.
 - 20—*William V. Pacelli, 771 De Koven Street.
 - 21—Dennis A. Horan, 2325 Marshall Boulevard.
 - 22—Joseph Cepak, 3250 W. 26th Street.
 - 23—John Toman, 4056 W. 21st Street.
 - 24—Jacob M. Arvey, 11 S. La Salle Street.
 - 25—James B. Bowler, 1311 S. California Avenue.
 - 26—*Frank A. Sloan, 1223 W. Roosevelt Road.
 - 27—H. C. Van Norman, 1717 W. Madison Street.
 - 28—Geo. M. Maypole, 905, 139 N. Clark Street.
 - 29—Albert J. Horan, 307 S. Kedzie Avenue.
 - 30—John S. Clark, 215 S. Cicero Avenue.
 - 31—Frank E. Konkowski, 1030 W. Chicago Avenue.
 - 32—Jos. Higgins Smith, 2305 W. Superior Street.
 - 33—*G. M. Rozczynski, 1952 Evergreen Avenue.
 - 34—Edward J. Kaindl, 2331 Rice Street.
 - 35—George Seif, 211, 2750 W. North Avenue.
 - 36—Eugene L. Nusser, 2100 N. Avers Avenue.
 - 37—*James H. Taylor, 446 Pine Avenue.
 - 38—Max Adamowski, 2812 Fullerton Avenue.
 - 39—*Frank R. Ringa, 3701 Belmont Avenue.
 - 40—*Joseph C. Ross, 3225 Lawrence Avenue.
 - 41—Thos. J. Bowler, 6101 Warwick Avenue.
 - 42—D. R. Crowe, Com. Rm. A, City Hall.
 - 43—*Arthur F. Albert, 902, 77 W. Washington Street.
 - 44—Albert E. Loeschner, 1217 Webster Avenue.
 - 45—Wm. H. Feigenbutz, 3234 Southport Avenue.
 - 46—O. F. Nelson, 1223, 160 N. La Salle Street.
 - 47—John J. Hoellen, 1938 Irving Park Boulevard.
 - 48—*John A. Massen, 230 S. Clark Street.
 - 49—*E. I. Frankhauser, 1045, 33 S. Clark Street.
 - 50—*Curtis F. Mellin, 2337 Devon Avenue.

systems must be deposited with the building commissioner, as must also details of any changes in systems. The annual fee is \$50.00. A permit for each installation is required and inspection fees for each installation are as follows:

- (a) For motor and compressor unit, three (\$3.00) dollars.
- (b) For each evaporator unit, fifty (\$0.50) cents.
- (c) For each junction or outlet box, twenty-five (\$0.25) cents.

Specifications for pipe, valves and fittings, tests, and safety features conform to the National Code. A penalty not to exceed \$19.00 is fixed for each violation of this ordinance. The ordinance was passed by the council and approved by the mayor the same day.

Drastic Price Reductions

ON

BOHN all-porcelain base cabinet models

WHITE PORCELAIN, OUTSIDE AND INSIDE

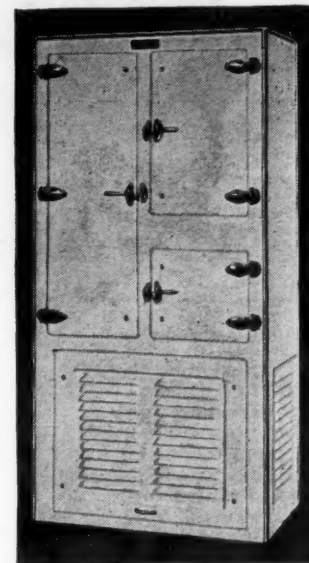
5, 6, 7, 9 and 12 Cubic Feet of Food Storage

The handy base cabinet may either be used for refrigerating machinery or the storage of cooking utensils, canned goods, vegetables, etc.

These beautiful BOHN refrigerators, with their heavy insulation, sturdy general construction, and patented air-circulating principles, are an assurance that your units will render perfect refrigeration and do so economically.

Write for details of these remarkably low prices.

Many models for remote installation are also greatly reduced.

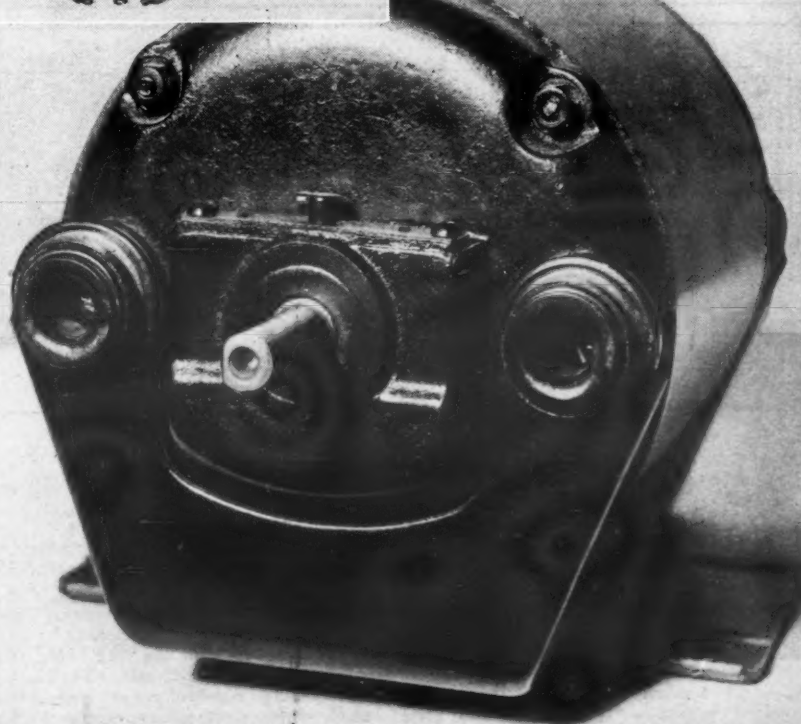


Bohn is the World's Largest Builder of Quality Refrigerators

BOHN REFRIGERATOR COMPANY
SAINT PAUL, MINNESOTA

Rubber Mounted for Quietness

Noiseless starting and stopping, as well as running, were again improved when rubber mounting was provided for Wagner refrigerator motors. Heavy rubber bushings prevent metal to metal contact between the motor and its support ... just a detail in the making of Wagner motors to fit the job.



Wagner manufactures every commercial type of AC Motor and can recommend without prejudice.

Literature on request

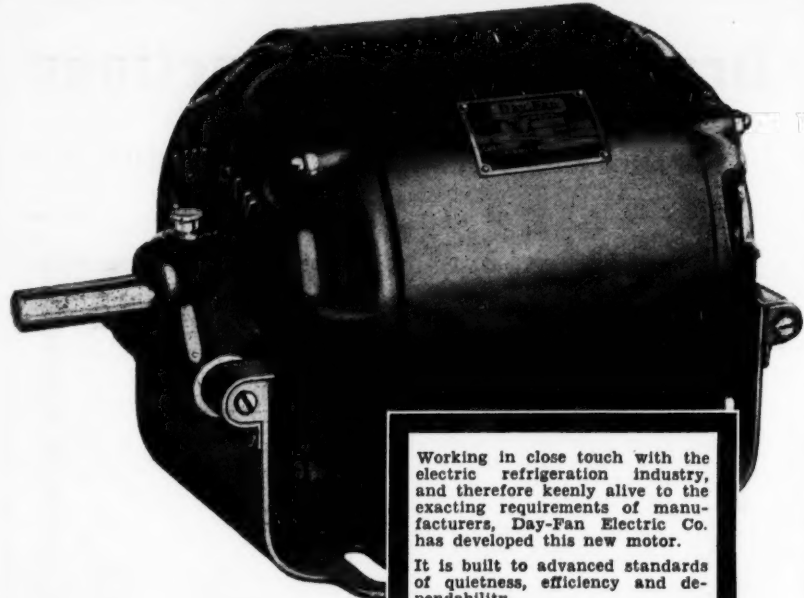
WAGNER ELECTRIC CORPORATION

6400 Plymouth Avenue, St. Louis, U. S. A.

Wagner Sales Offices and Service Stations in 25 Principal Cities

Products: FANS ... Desk ... Wall ... Ceiling TRANSFORMERS...Power...Distribution...Instrument MOTORS...Single-phase...Polyphase...Direct Current

Wagner
...quality



Day-Fan fractional horse-power motors are operating many well-known appliances, besides refrigerators—pumps, washing machines, cleaners, fans, etc.

We will gladly furnish sample of any type motor for test.

Working in close touch with the electric refrigeration industry, and therefore keenly alive to the exacting requirements of manufacturers, Day-Fan Electric Co. has developed this new motor.

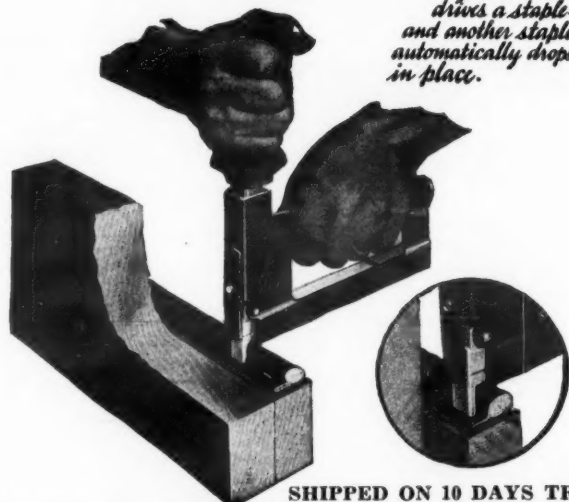
It is built to advanced standards of quietness, efficiency and dependability.

Brush lifting type, and mounted with rubber cushion on specially designed cradle base, it is free from electrical hum and vibration. With it we are helping both Copeland Products and Kelvinator Corporation insure silence, economy and dependability to users of their refrigerators.

Day-Fan Electric Company
DAYTON, OHIO

GASKET QUICKLY APPLIED

A gentle blow drives a staple and another staple automatically drops in place.



SHIPPED ON 10 DAYS TRIAL

Should be in the tool kit of every installation man, service man, repair man.

8 TIMES FASTER—MORE SECURE

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save the refrigerator dealer time, money and grief

THE EASIEST way to have pleased and contented customers is to deliver fine goods in fine packages. The housewife knows that a machine delivered in a Slingabout needs no repolishing once it has been placed in the kitchen. And you will not be called on to repair blemished walls and woodwork. For even the best of movers can't avoid an occasional bump or nick if heavy merchandise, such as the average refrigerator, is not carefully protected.

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can be used hundreds of times. Webb Slingabouts are carefully tailored to fit the sizes of refrigerators you handle. The heavy-duty canvas cover and thick cotton packing protect the machine from any outside knocks. Even fine porcelain is secure when the refrigerator is protected with a Webb Slingabout. There is no danger from scratching, for the fleecy flannel lining makes the beautiful finish absolutely safe. The harness, made of three-ply canvas and leather reinforcements at the points of strain, enables the men to handle it quickly and easily.

WEBB
Slingabout

GEARON ORDINANCE AS APPROVED BY CHICAGO COMMITTEE

Prepared by Gerald F. Gearon, this code was offered to the subcommittee of the Health Committee of the Chicago City Council by the Boiler Inspection Department, Aug. 2, and was passed by the subcommittee on that date. (See pages 1, 2, 4 and 8 for story).

Proposed Amendments of Sections 3677 to 3686 Inclusive, as Follows:

INSPECTIONS. It shall be the duty of the chief inspector of the department for the inspection of steam boilers, unfired pressure vessels and cooling plants, and his assistants, in addition to the duties specified in Article I of this Chapter, to inspect all refrigerating systems, hereinafter defined as Classes "A," "B" and "C" and Class "D" systems, where the piping machinery and apparatus is under pressure, including boilers, tanks, jacketed kettles, generators, shell brine coolers, shell condensers, shell absorbers, purifiers, pipe condensers, compressors and pipes used therein, and the apparatus connected therewith, and the extensions thereunto. Said inspections shall be made at least once a year, and whenever in the judgment of said chief inspector said inspection shall be necessary.

Section 3681. CLASSIFICATIONS. Refrigerating systems shall be classified according to the total weight of refrigerant contained in them or required for their proper operation.

Class A System—One containing 1,000 lbs. or more of refrigerant.

Class B System—One containing more than 100 lbs. but less than 1,000 lbs. of refrigerant.

Class C System—One containing more than 20 lbs. but not more than 100 lbs. of refrigerant.

Class D System—One containing 20 lbs. or less of refrigerant.

Classes A to D, inclusive, shall be designated as either single unit or multiple systems.

Section 3682. LIMITATIONS AS TO USE. (a) No refrigerating system shall be placed in:

1. Wards, dormitories, and private rooms of hospitals, asylums, prisons or any place where people are confined or are helpless.

(b) No refrigerating system containing over five (5 lbs.) pounds of refrigerant shall be placed in:

1. Entrances and exits of public buildings.

2. Lobbies and auditoriums of places of public assembly.

3. Dance and assembly halls above the first floor.

4. Entrances and exits of buildings not hereinafter classed as public buildings, having less than three thousand (3,000) cubic feet of volume per pound of refrigerant used.

5. Underground waiting rooms.

6. Subways.

7. Diet kitchens of hospitals.

Provided, however, that refrigerating systems may be used in such places if the indirect method of refrigeration is used, and all refrigerant-containing equipment is placed in some other room provided with natural or mechanical ventilation as hereinafter required. Every opening between the prohibited spaces and such adjoining rooms shall be provided with close-fitting, self-closing doors.

(c) Except as hereinafter provided no installation of any refrigerating system using a flammable or irritant refrigerant shall be made in any public buildings such as:

1. Theatres.

2. Exhibition, dance and assembly halls above the first floor.

3. Buildings containing wards and private rooms of hospitals.

4. Asylum dormitories.

5. Schools, except Class D systems in kitchens, laboratories and dining rooms.

6. Police stations and jails.

7. Underground passenger stations.

8. Entrances and exits of buildings, unless all of the refrigerant-containing parts of the system are placed in a separate machinery room not used for habitable or workshop purposes.

Such machinery room shall have tight walls and shall have no communication with any other part of the building, and shall be entered and ventilated from the outside.

(d) Except as hereinafter provided, no refrigerating system using the direct method of refrigeration shall be installed or maintained above the first floor of any building, other than a building used exclusively for ice making and/or refrigeration and/or chemical purposes, or packing houses, if such system contains:

(1) Over five hundred pounds (500 lbs.) of any refrigerant.

(2) Over two hundred pounds (200 lbs.) of a flammable or irritant refrigerant or

(3) Over one hundred pounds (100 lbs.) of a flammable or irritant refrigerant if the building, or any part thereof, be used for sleeping quarters.

(e) Except as hereinafter provided no refrigerating system using the direct method of refrigeration and employing a flammable or irritant refrigerant in excess of one hundred pounds (100 lbs.) shall be installed in any building, other than a building used exclusively for ice making and/or refrigerating purposes and/or chemical purposes, and/or packing house or similar industries located in industrial districts, unless the pressure-imposing element, condenser, receiver and shell type apparatus

(except the evaporators of a multiple system) are located in a machinery room which shall not be above the first floor (unless located on the roof), which shall have tight interior walls and adequate ventilation and which shall have all of its openings to other parts of the building protected with close-fitting and self-closing doors.

(f) No refrigerating system or any part thereof shall be placed, located or maintained in any sleeping room, including adjoining alcove, dinette or kitchenette or any directly adjoining room or suite of rooms with less than a total of four thousand (4000) cubic feet of space, or combined space, occupied by person, family or group of persons, any part of which space is used for sleeping purposes, unless such sleeping room is provided with a window or windows, the total area of which shall be not less than ten (10) per cent of the floor area of such room or space; such window or windows shall open to the outside air, and shall be so constructed that at least one-half of such window or windows can be opened readily.

(1) Multiple refrigerating systems using the direct method of refrigeration and containing over one hundred pounds (100 lbs.) but not to exceed three hundred (300 lbs.) of refrigerant may be installed in any building or part of a building used as a place of human habitation, provided that such installation shall have constant supervision.

(j) All poisonous or toxic refrigerants used in any direct system of refrigeration shall have a distinct and easily recognizable odor or characteristic irritating properties.

Section 3683. PERMIT AND APPROVAL REQUIRED—PLANS AND SPECIFICATIONS. No new plants or any reconstruction of old plants for refrigerating or cooling purposes shall be installed, erected or maintained in the city of Chicago until plans and specifications have been filed in the office of the department for the inspection of steam boilers, unfired pressure vessels and cooling plants, and approved by the chief inspector. Such plans and specifications shall show the kind and amount of refrigerant used. Upon approval of said plans, a duplicate set of which shall be left on file in the office of the chief inspector, and the payment of the respective fees, as hereinafter provided, said chief inspector shall issue a permit for the installation of said plant.

Provided, however, that only the general plans and specifications for each type or model of unit system which can be removed either with or separately from the space refrigerated without disconnecting any refrigerant-containing parts, shall be submitted to the chief inspector for the department for the inspection of steam boilers, unfired pressure vessels and cooling plants for examination and approval. Based on the inspection and approval of such types or models of unit system, a general permit shall be issued by the chief

Chicago Affair Demands Action

Editorial from Electrical World August 3, 1929

Several recent deaths in Chicago and other places in the country have been attributed to the undetected leakage of methyl chloride from domestic refrigerators. Just recently a triple death in Chicago caused Health Commissioner Kegel to place a ban on this refrigerant and issue the statement that he would do all in his power to stop the use of any unit employing this gas. News accounts of these deaths—especially the three just mentioned—have had prominent positions in local newspapers and have even been reproduced in distant cities with editorial comment.

It is not difficult to imagine the reaction of the general public to these accounts. Laymen cannot be expected to know that all refrigerators do not use the same gas. They hastily conclude that all electric refrigerators constitute a dangerous hazard. Electric refrigeration, which has already done so much to prevent spoilage of food and to protect health, which has won such ready acceptance as a household convenience, and which offers one of the best opportunities for taking domestic electric service out of the unprofitable class, may be facing a setback that years of selling effort will not counteract, unless convincing precautions are immediately taken to prevent repetitions of these fatal accidents from gas.

Since gases suitable for efficient refrigeration are limited in number, however, putting a ban on methyl chloride is not the solution except as a last resort. First should be ascertained what more can be done in design, installation or inspection to remove the possibilities of leakage. Since multiple installations, which contain the most gas under the highest pressure, are the most hazardous, they need the most study. Possibly methyl chloride could be impregnated with something that would give it a distinctive odor or produce sneezing to serve as a warning of leaks. For this gas is less toxic than others and is dangerous largely because it lacks odor. But if the hazards of methyl chloride cannot be guarded against in any other way, it would be better to abandon its use entirely than to handicap the expansion of electric refrigeration.

inspector of the department for the inspection of steam boilers, unfired pressure vessels and cooling plants, authorizing the placing or installing of such approved types or models.

Section 3684. FEES. The fee for permit under this ordinance shall be as follows:

Commercial Systems	Residential and Remote Systems	Multiple and Evaporator Systems
Class A \$10.00	Each pressure-imposing element \$5.00	Each Evaporator \$5.00
Class B 5.00		
Class C 5.00		
Class D 5.00		
Fee for general permit for Unit Systems \$200.00		

The fee for inspection as provided under this ordinance shall be as follows:

Commercial Systems	Residential and Remote Systems	Multiple and Evaporator Systems
Class A \$20.00	Each pressure-imposing element \$8.00	Each Evaporator \$5.00
Class B 10.00		
Class C 5.00		
Class D 5.00		

All fees shall be paid to City Collector.

Section 3685. CERTIFICATE OF INSPECTION TO BE POSTED. When an inspection of a refrigerating system has been made and same approved by the chief inspector he shall make and deliver to the person for whom the inspection was made, upon the payment of fees described in this article, a certificate of such inspection which shall contain the date of inspection, together with a general description of the plant, amount of refrigerant used and the pounds pressure which may be safely used. Such certificate shall be framed and posted in a conspicuous place in the compressor room.

Section 3685a. MANUFACTURERS AND DEALERS—NOTIFY DEPARTMENT. Any person or corporation manufacturing, dealing in, selling or erecting refrigerating systems as defined by this ordinance shall, on the sale or delivery of any such system or unit at any point or locality within the city, notify the chief inspector of the department for the inspection of steam boilers, unfired pressure vessels and cooling units, giving the name of owner, number and name of street, or otherwise designate the locality of said delivery or sale.

Section 3686. PENALTY. Any person, firm or corporation violating any of the provisions of the foregoing sections of this ordinance shall be fined not less than \$25 and not more than \$200 for each offense.

Proposed Rules for the Construction of Refrigerating Systems as Recommended by the Department for the Inspection of Steam Boilers, Unfired Pressure Vessels and Cooling Plants

Construction of Pressure Vessels

Boilers, tanks, generators, liquid receivers, shell brine coolers, shell condensers, shell absorbers, purifiers and other vessels subject to pressure shall be constructed of such materials and in conformity with the rules for unfired pressure vessels issued by the department for the inspection of steam boilers, unfired pressure vessels and cooling plants.

Piping, Fittings, Etc.

All steel pipe, wrought iron pipe, seamless copper tubing shall conform to the specifications for such material as issued by the Department for the Inspection of Steam Boilers, Unfired Pressure Vessels and Cooling Plants.

All refrigeration piping, tubing, fittings, valves shall be of material suitable for the refrigerant used.

For pressures exceeding 125 lbs. extra heavy steel or wrought iron pipe shall be used and connected with extra heavy fittings.

For pressures not exceeding 125 lbs. pipe or seamless tubing of not less than standard pipe size shall be used.

Steel or wrought iron pipe may be connected by the acetylene or electric welding process provided that it is in conformity with the rules for welding of steam piping as issued by the Department for the Inspection of Steam Boilers, Unfired Pressure Vessels and Cooling Plants.

For refrigerating systems of Class C or D, when not fulfilling requirements of the above paragraphs, seamless copper tubing or tubing of other suitable metal of not less than thirty-four one thousandths of an inch wall thickness shall be used. Provided, further, that the joints are sweated, brazed or properly annealed and flared.

The discharge pipe between compressor or generator and condenser connections of ammonia and carbon dioxide machines shall be of extra heavy material and provided with two stop valves. All flange fittings shall be of tongue and grooved type or recessed gasket type.

In all Class C Systems and in all Class D multiple refrigerating systems using seamless metal tubing of less than standard wall pipe thickness for refrigerant line or lines, the refrigerant line or lines shall be enclosed in iron pipe or tubing or other metal enclosures. The enclosures may be of flexible metal at bends or terminals if not exceeding 6 feet in length and if enclosure is rigidly secured to the wall or other supports. No metal enclosure shall be required for refrigerant lines between the pressure-imposing element, condenser, or shell type apparatus and the nearest riser box, provided these lines do not exceed 6 feet in length and are located within the refrigerating machinery room where such room is required.

All valves and fittings in such system except those with the evaporator, pressure-imposing element, liquid receiver or shell type apparatus and every connection or tubing shall be arranged in or on a suitable metal box and shall be rigidly attached thereto or to the supports thereof. Every such box shall have an accessible door or removable cover.

Shut-off valves shall be installed at the following locations: At each service outlet in pressure and return lines, and in each riser or manifold connection at or

Boiler Inspection Department

near the compressor. These valves shall be fitted with a hand wheel or other means of ready operation as an integral part thereof.

Valves in service connections shall be located outside of refrigerating unit and at such distance above the floor as will provide ready accessibility.

Evaporators of low-side float type which may be removed as a unit shall have valves permitting the removal of the evaporator with valves attached.

No tubing joint shall be placed in conduit.

Not more than one refrigerator shall be connected to any outlet box. Every such outlet box shall be located within the premises containing the refrigerator, but not within the refrigerated space, and shall be readily accessible at all times. No outlet box shall be located in any hallway, stairway or vertical shaft.

Every opening from or into a metal enclosure for refrigerant lines shall be free from sharp edges which might injure the tubing.

Service valves shall be installed in both connections to every household flooded type evaporator that can be removed from the refrigerator as a unit, in such a manner as to permit the removal of the evaporator with valves attached. This is not required on unit systems.

Every Class B multiple refrigerating system extending into any living quarters shall be connected by extra heavy pipe. All fittings and valves except for ammonia and carbon dioxide systems shall be of the forged type. Each such valve or fitting shall be rigidly supported but need not be enclosed. Connections from refrigerator service valves to the evaporator shall be of the same material.

Every liquid level gauge glass shall of sufficient strength to withstand the high side test pressure and, except those of the bulb type, shall have automatic closing shut-off valves and shall be adequately protected against injury, by slotted metal casings.

No refrigerant line shall be located in any elevator, dumb-waiter or any other shaft containing moving objects.

All piping and tubing containing refrigerant shall be supported to prevent excessive vibration and strains at joints and connections. Hangers and braces shall be of flat angle or round wrought iron or steel, rigidly secured by screws or bolts.

Every evaporator and household refrigerator, unless constructed of sufficient strength to prevent injury in the ordinary and customary use thereof, shall be protected by suitable shield to assure protection against such injury. Every such evaporator shall be firmly anchored or secured in such manner as to make it immovable.

Every refrigerator cabinet, box, casing or refrigerated space containing or enclosing any evaporator of any multiple refrigerating system using the direct method of refrigeration shall be firmly and securely anchored and fixed to a wall, floor or other immovable object in such manner as to hold such refrigerator, box or casing enclosing the evaporator securely in place.

Safety Devices

On any system using ammonia or carbon dioxide as a refrigerant a pop safety valve must be located between condenser or receiver and the first stop valve. Discharge of safety valve must be piped into the suction line.

A rupture member may be substituted for the relief valve in carbon dioxide systems.

The size of pressure relief valves shall be as follows:

Capacity of System	Carbon Dioxide and Ethane Refrigerants	Other Refrigerants
Lbs. Required Size	No.	No.
Up to 1000	1	1
1000 to 1800	1	1
1800 to 3000	1	1
3000 to 5200	1	1
5200 to 7500	1	1
7500 to 13500	1	1
13500 to 27000	2	2

Every Class A, B and C Refrigerating System operating above atmospheric pressure shall be provided with a pressure-limiting device to stop the action of the pressure-imposing element at a pressure less than 90% of the setting of the pressure relief device on the high pressure side.

Every pressure relief valve, pressure limiting device and rupture member shall be set to prevent the pressure exceeding the test pressure for the refrigerant used, as set forth hereafter in this code.

The low pressure side of every Class A or B system shall be provided with a hand operated relief valve for discharging the refrigerant in case of fire, either to the outer air through a free vent or to a suitable body of water. The hand operated relief valve shall be located outside the machinery room or shall be capable of operation from the outside. The handle of this valve shall not be removed.

Condensers, liquid receivers and every shell type apparatus which can be shut off by stop valves shall be equipped with a pressure relief valve set at pressures not exceeding the safe working pressure as computed by the Rules. Safety valves shall discharge as hereinafter provided.

No stop valve in any refrigerating system shall be located between pressure relief device or pressure limiting device and the part of the system protected thereby, unless two such devices are used and so arranged that only one can be shut off for repair purposes at any one time.

Where an irritant or flammable refrigerant is used in Class A or B systems, the discharge from the pressure-relief valves on the high pressure side must be conducted to the outside atmosphere or into that part of the low pressure side protected by the low pressure relief valve. The discharge to the outside atmosphere from either the high or low pressure side must be not less than twelve feet (12') above the grade, and not closer than ten feet (10') to any opening in any building, or closer than twenty feet (20') to any fire escape. The discharge pipe shall be not less than the size of the relief valve outlet. The discharge from more than one relief valve may be run into a common header, the area of which shall be equal to the areas of the pipes connected thereto. The outlet shall be turned downward.

Where ammonia is used in a Class B or C system the discharge from relief valves may be into a tank of water which shall be used for no purpose except ammonia absorption. At least one gallon of fresh water shall be provided for every pound of ammonia contained in the system. The water used shall be prevented from freezing without the use of salt or chemicals. The tank shall be substantially constructed of not less than one-eighth inch (1/8") or No. 11 U. S. gauge iron. No horizontal dimension of the tank shall be greater than one-half (1/2) the height.

The tank shall have a hinged cover or if of the enclosed type, shall have a vent hole at the top.

All pipe connections shall be through the top of the tank only. The discharge pipe from the pressure relief valves shall discharge the ammonia in the center of the tank near the bottom.

No pipe or fitting connected with or conveying the public water supply for cooling or for any other purpose shall be so connected or arranged that the purity of the public water supply may be impaired. Water used for removing heat from a refrigerating machine system shall not thereafter be used for drinking purposes.

On every machine over two tons capacity using ammonia or carbon dioxide as a refrigerant a high or low pressure check valve, or equivalent, which has been approved by the Chief Inspector of the Department for the Inspection of Steam Boilers, Unfired Pressure Vessels and Cooling Plants, must be provided for each unit and located as close to the compressor as convenient and provided with a by-pass.

Check valves in an absorption system shall be located between rectifier and condenser and in the discharge line close to the aqua pump.

Every compressor or pressure-imposing unit, except unit machines, shall be provided with a by-pass, in such manner as to permit transference of refrigerant from one part of the system to the other.

Every compressor or pressure-imposing element must be equipped with gauges on the high and low pressure side.

Compressors of a multiple system not located in a machinery room shall be located in an accessible part of the building having adequate lighting facilities, as nearly beneath the riser lines as possible, and shall be protected by the use of heavy wire netting secured to metal posts or two by four wooden studding. They shall not be located under stairways or near dumb-waiter or elevator shafts.

Machinery rooms containing the pressure-imposing element, condenser, receiver and/or shell type apparatus, shall have tight walls, be ventilated from the

outside by natural or mechanical means, have every opening to other parts of the building protected by close fitting, self-closing doors, and shall not be used for habitable purposes. A machinery room containing a refrigerating system employing a flammable or irritant refrigerant in excess of one hundred pounds shall have fire-resisting walls.

Tests

It shall be the duty of any person, firm or corporation installing Class A, B, C or D Multiple Systems to apply tests required by the Chief Inspector of the Department for the Inspection of Steam Boilers, Unfired Pressure Vessels and Cooling Plants.

Tests of installation shall be made in the presence of an Inspector of the Department for the Inspection of Steam Boilers, Unfired Pressure Vessels and Cooling Plants, and shall be applied to every refrigerating system, or parts thereof, installed before being put into use.

Tests of installation in new buildings shall be made before the piping and connections of the system are covered up or made inaccessible.

It shall be the duty of every person, firm or corporation installing refrigerating systems, as aforesaid, to notify the Chief Inspector of the Department for the Inspection of Steam Boilers, Unfired Pressure Vessels and Cooling Plants whenever any system has reached the stage of construction where it is ready for inspection tests.

The testing of every refrigerating system shall include a pressure or vacuum test of the complete piping system, preferably with the evaporator installed, but valves thereon may be closed to prevent withdrawal of the refrigerant.

Under these tests a partial vacuum of twenty inches of mercury shall be produced within the system and shall be held for a period of at least one hour with no detectable drop.

Every part of every refrigerating system, except pressure gauges and control mechanism, shall be designed, constructed and assembled to withstand safely, and without injury, the following required minimum test pressures which shall be applied for the pressure test. These test pressures shall be held by every refrigerating system under test for a period of at least twenty-four hours without an appreciable fall.

Test Pressure in Pounds Per Square Inch

Refrigerant Used	High Pressure Side	Low Pressure Side
Carbon dioxide.....	1500	750
Ethane.....	1100	550
Ammonia.....	900	450
Propane.....	250	125
Methyl Chloride.....	175	125
Sulphur dioxide.....	135	100
Isobutane.....	135	100
Butane.....	100	50
Ethyl Chloride.....	100	50
Dichloromethane.....	15	15
Trichloroethylene.....	15	15
Dichloroethylene.....	15	15

For other refrigerants not herein enumerated, the Chief Inspector of the Department for the Inspection of Steam Boilers, Unfired Pressure Vessels and Cooling Plants shall determine the test pressures to be applied.

Operating Precautions

It shall be the duty of the person in charge of the premises wherein any refrigerating system is located to exercise due diligence to see that the refrigerating system is properly maintained and operated at all times.

A gas helmet or mask suited to the refrigerant used shall be provided with every Class A System or Class B System that operates above atmospheric pressure except when carbon dioxide is used.

Every gas helmet or mask shall be of a type approved by the Chief Inspector of the Department for the Inspection of Steam Boilers, Unfired Pressure Vessels and Cooling Plants as suitable for the refrigerant used, shall be inspected annually and shall be kept in operative condition in an easily accessible case or cabinet.

Whenever a flammable or irritant refrigerant is drained from any system it shall be discharged into a suitable absorbent or container.

Containers shall not be connected to the system except during period of charging or withdrawing the refrigerant.

In testing with air pressure care shall be taken to prevent the temperature at any point from rising above one hundred and thirty (130) degrees Fahrenheit.

Whenever the losses of a flammable or irritant refrigerant from a residential multiple system are such as to endanger the health or lives of the human occupants of any room or structure in which such refrigerating system, or any part thereof, is located, it shall be the duty of the owner of such refrigerating system to apply suitable pressure or other tests to prove the system tight.

Instructions and Refrigerant Charges To Be Posted

It shall be the duty of the owner of any refrigerating system except a Class D system to post and keep conspicuously posted in a place as practicable to the pressure-imposing element of such system a card giving operating directions for such system, including precautions to be observed in case of a breakdown or leak. The following shall be included in the instructions and information listed on such cards.

1. Instructions for shutting down the system in case of emergency.
2. The name, address and telephone number of every engineer or operator in charge.
3. The name, address and day and night telephone number for service.
4. The telephone number of the Department for the Inspection of Steam Boilers, Unfired Pressure Vessels and Cooling Plants, and instructions to notify said department immediately in case of serious leakage or other emergency.
5. The location of the nearest fire alarm box.
6. The date, amount and kind of refrigerant placed in the system at the time of initial charging and every subsequent recharging, and the name and address of the person charging or recharging the system.

The manufacturer of every unit refrigerating system shall mark upon the name or model plate thereof the kind of refrigerant contained within the system. Every Class A, B, C, and multiple Class D system shall have the name of the refrigerant painted or affixed in a permanent manner either to the pressure imposing element or to the piping in proximity thereto. The kind of refrigerant and instructions for shutting off refrigerant shall be prominently posted at the branch valves used for shutting off each evaporator or set of evaporators contained within each refrigerated space.

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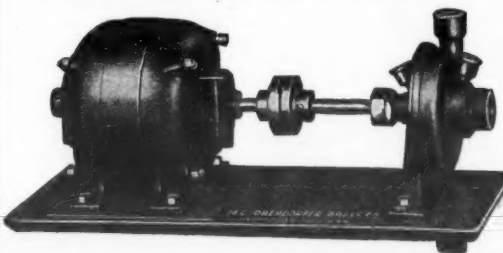
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American Housewife

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Williams Presents Multiple Plan Conforming to Kegel's New Code

PROPOSES METHOD TO LIMIT LEAKAGE IN CENTRAL PLANTS

By E. T. Williams

FOR some years past there has been considerable difference of opinion concerning the question of the safety of the so-called multiple refrigerating system in multiple apartment homes. The manufacturers in the industry, as well as national engineering, scientific, chemical, educational, safety and insurance organizations, and government bureaus and departments, which have been engaged in formulating safety codes, experience little or no difficulty in agreeing on practically all provisions for the design, manufacture, installation and operation of all types and classes of systems, excepting those for multiple apartment dwellings.

Such systems comprise one or more central plants from which piping containing volatile chemical refrigerants under pressure is extended throughout the building and connected to a refrigerator located in each apartment. The number of refrigerators connected to a single system of this type varies from four to one hundred and fifty and even more with a chemical refrigerant content varying from a few pounds to upwards of a thousand pounds.

The manufacturers and dealers who advocate and sell such systems claim them to be safe even though in a majority of cases their operation is in charge of persons untrained and incapable of properly caring for them and who give them little or no attention until a breakdown occurs which necessitates a service call to re-establish refrigeration service.

New York Code Cited

About a year and a half ago New York City adopted an ordinance, against the determined opposition of some of the larger manufacturers of these systems, prohibiting the installation above the first floor of any such system which contained in excess of twenty pounds of refrigerant. This has served to practically eliminate direct multiple systems in apartment homes in that city.

The American Standards Association organized a sectional committee comprising some twenty-six national organizations representing substantially every interest in any way affected by the manufacture, sale, installation and use of refrigeration equipment, to draft a safety code. The American Society of Refrigerating Engineers undertook the sponsorship of this committee. To recite the names of these various organization members should be sufficient to inspire entire confidence in its work.

After numerous meetings of this committee, at which the various hazards were most carefully considered in minute detail, a code was adopted by an overwhelming majority vote, which placed the New York twenty pound limitation on such systems when extended above the first or ground floor.

The Executive Council of the sponsor body approved this code and passed it to the main committee for final action. Owing to the opposition of a small group of some of the larger manufacturers, however, this code has not been finally approved and issued as recommended regulations for use of law-making bodies, as intended.

These manufacturers persist in their contention that these systems are safe, in spite of frequent happenings requiring the calling out of fire department emergency squads with gas masks to rescue tenants and stop the escape of suffocating refrigerants. The fact is that these systems as now installed with their large refrigerant content, all of which may leak through a defect into a single apartment, constitute a potential menace of large magnitude to life and health. Of this there is no question as evidenced by the occurrences in Chicago during the past few weeks.

Opinions Vary

The Chicago authorities are now engaged in drafting a code or ordinance to insure a reasonable degree of safety in these systems. The opinions of the individuals engaged in this work as to the quantity of refrigerant that can safely be permitted in these systems vary all the way from two pounds to three hundred pounds under certain conditions.

It has been demonstrated that two pounds of refrigerant escaping during twelve hours into a closed apartment of about four thousand cubic feet including directly connecting rooms or spaces such as kitchenettes, dinettes, and bathrooms, of which there are many in Chicago, will produce fatal lesions in the brain, lungs, stomach and other vital organs of guinea pigs, and from this it has been concluded by the health authorities that a like amount in the same period would prove dangerous to human beings.

It was, therefore, proposed that any multiple system that would permit the

escape of a refrigerant into any such apartment in excess of two pounds through a complete break or fracture in any part during twelve hours or less should be prohibited.

There is no such system at present, so far as known. It is quite possible, however, that one closely approximating this limitation might be developed.

The manufacturers of small domestic refrigerators and systems seldom if ever connect more than twenty-six refrigerators to a single system. For these they now demand the refrigerant content limit to be placed at one hundred pounds.

To point the way toward means whereby such systems may possibly be installed and successfully operated on twenty pounds or less of refrigerant, the accompanying diagram is submitted. It should be understood that this was gotten up hurriedly and is only offered at this time in the way of a suggestion and with the hope that it may serve to stimulate research and development that will ultimately produce a degree of safety that will entirely eliminate all possible danger from these systems in apartment homes.

This diagram is intended to show a five story and basement building having six apartments on each floor, or a total of thirty refrigerators on a single system.

The total refrigerant content of the system would depend upon the kind of refrigerant employed. There is considerable variation in the specific gravity of the refrigerants in general use and as the total inside volume of the system shown is definitely fixed the weight of the refrigerant required for its operation would vary according to its respective specific gravity or density at the working temperatures.

For example: Assuming a system requiring twenty pounds of Sulphur Dioxide; the approximate weight of other refrigerants that would be required for the same system would be:

Methyl Chloride.....	13 pounds
Ethyl Chloride.....	13 pounds
Isobutane.....	8 pounds

In the system shown three outstanding factors are relied upon for limiting the amount of refrigerant that would escape from a break or fracture in any part outside the refrigerating machinery room. These are:

1. The small total quantity of refrigerant required, or that can possibly be used without interfering with proper refrigeration;
2. Automatic means for isolating the refrigerant in sections in such manner that in case of a break only a small fraction of the total content can escape. The pressure imposing element will be shut down and positive closure will be established between the high and low pressure sides of the system; also in the event of a slow leak over a period of time the system will fall to function long before enough refrigerant could escape to cause injury;
3. Employment of materials, design and construction that will insure the utmost protection against mechanical injury and/or corrosion that might permit refrigerant to escape.

Parts, Devices Described

Referring to the diagram, the various parts and devices will be briefly described:

The thirty circles arranged in six columns of five each show the evaporators. These are arranged in six riser sections, marked "A," "B," "C," "D," "E" and "F," respectively.

Only the automatic valves and devices employed are shown, it being understood that the usual hand operated valves will be included.

The complete automatic equipment is indicated on the evaporator section "A" only, though the other five sections would be similar in manner.

All arrowheads in pipe lines indicate check valves and the direction of the flow.

Device P-1 is the usual suction pressure-temperature control switch for starting and stopping the compressor motor;

LH-1 is a switching device which opens the electric circuit when the vapor pressure in the condensing side is either abnormally low or abnormally high.

SV-1 and SV-2 are solenoid operated valves, both of which shut down when any one of the above mentioned switches is opened, and again opened when the circuit is closed;

M-1, M-2, M-3, M-4, M-5 and M-6 indicate the suction line manifolds;

M-7 indicates the liquid refrigerant manifold;

The direction of the flow throughout the piping system is indicated by arrows paralleling the pipe lines. Other parts are sufficiently diagrammed to make further description of them unnecessary.

All valves, manifolds and other apparatus for the operation and control of the

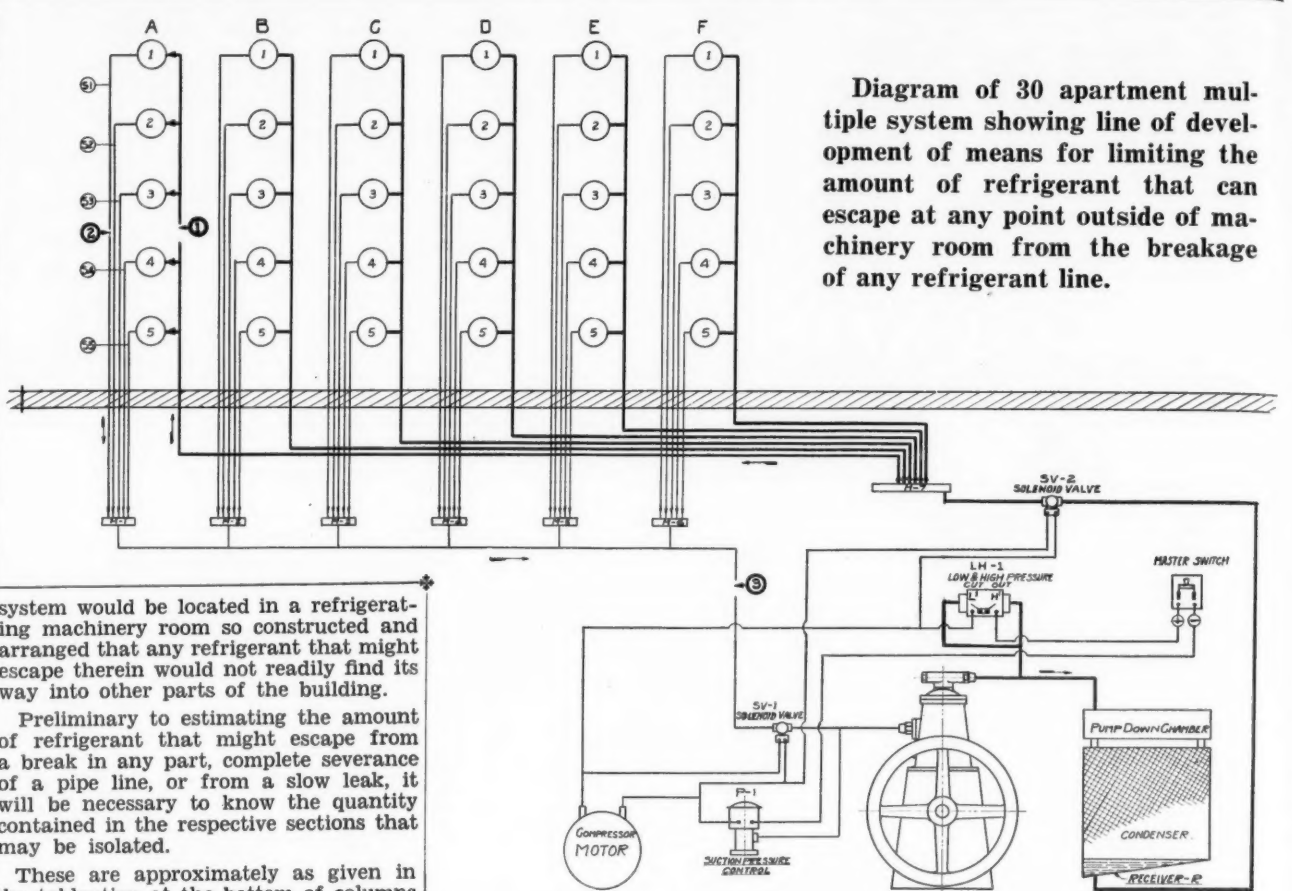


Diagram of 30 apartment multiple system showing line of development of means for limiting the amount of refrigerant that can escape at any point outside of machinery room from the breakage of any refrigerant line.

system would be located in a refrigerating machinery room so constructed and arranged that any refrigerant that might escape therein would not readily find its way into other parts of the building.

Preliminary to estimating the amount of refrigerant that might escape from a break in any part, complete severance of a pipe line, or from a slow leak, it will be necessary to know the quantity contained in the respective sections that may be isolated.

These are approximately as given in the tabulation at the bottom of columns 2 and 3.

Assuming that Methyl Chloride is the refrigerant employed we have for the liquid:

Receiver.....	.67
Evaporator.....	.30
Liquid line, say 100' from Receiver to top of any one section riser....	.67
Total liquid.....	1.64

In the suction side we have only vapor. A break at any point above the basement would release immediately only the contents of one evaporator, the individual $\frac{1}{6}$ suction line, the five suction manifolds below check valves, the $\frac{1}{6}$ connecting tubing to the compressor and the contents of the compressor housing. This amount would be negligible but may be estimated at .1 pounds. This gives a total of 1.64 pounds on the high side, plus .1 pounds, equals (say) 1.75 pounds.

We may now consider what may happen in the case of actual severing of any refrigerating line:

1. Assume a break in the liquid line, as indicated on the diagram at (1) in evaporator section "A." All the liquid in this line and that in the receiver will escape immediately, amounting to a total of 1.34 pounds. The vapor discharge pressure will then quickly fall to a point that will cause the low pressure switch, L-1, to open, thus closing the solenoid valves, SV-1 and SV-2, so that refrigerant cannot pass from the balance of the system to the point of break; also the check valves in the manifold, M-7, will close, preventing back-flow from liquid lines supplying sections B, C, D, E and F. All leakage would then terminate and falling refrigeration, as well as the odor of the refrigerant, would quickly make the trouble known. The opening of the low pressure cutout, L-1, could readily be made to cause the ringing of an alarm bell. Of course, there may be a possibility of an over-run of vapor leakage at a low rate, but the probability is that the total to escape would be well within two pounds.

2. We may next consider the probable result of breaking the suction line, A-1, as indicated at (2) on the diagram in section A. All of the vapor in Evaporator A-1 in the suction line down to and including the compressor housing would escape immediately, say .02 lbs. The main suction line pressure would drop to slightly above atmospheric pressure when control P-1 would operate to shut down the compressor and close valves SV-1 and SV-2. The liquid in evaporator A-1 would continue to evaporate at a rate depending upon the volume of heat flow into the refrigerator until all liquid in the line and manifold down to valve SV-2 was exhausted. The check valves at the manifolds in the balance of the suction lines would prevent back-flow and escape of refrigerant from them. The total loss of refrigerant from this break would probably not exceed .75 lbs. The odor of the refrigerant should make the leak known.

3. The next break to consider is in the main suction line in the machinery room at point (3). The vapor in the six suction manifolds, M-1 to M-6, and that in the compressor housing and balance of the liquid line would escape immediately. The resulting drop in suction

pressure would open switch P-1, causing compressor to shut down and valves SV-1 and SV-2 to close, stopping further escape as the check valves in the suction lines at manifolds would prevent back-flow. The amount of refrigerant (in vapor form only) escaping from this break would be so small as to be negligible.

4. A slow leak over a period of time sufficient to lose 2 lbs. of refrigerant would practically terminate refrigeration in the evaporators at the top of the system. This would result in complaints from tenants and necessitate prompt repairs.

The foregoing examples of the function of the various devices should serve to enable the reader to estimate what amount of refrigerant would probably escape from any character and/or point of leakage elsewhere in the system.

There are, doubtless, other and perhaps better and simpler ways of accomplishing the results aimed at herein, and it is hoped that the inventive talent of this highly technical industry will get busy to find them in the least possible time.

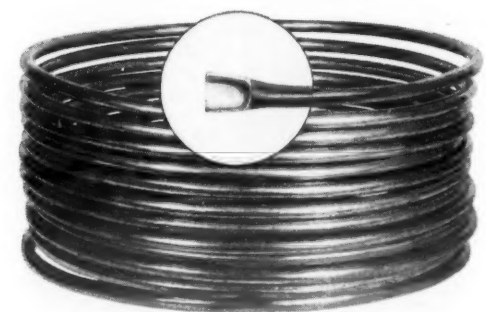
OMAHA IS MAKING PLANS TO ADOPT SAFETY CODE

Omaha city commissioners are now studying a safety code for installation and operation of electric and gas refrigerators in that city. This action was induced on account of the accidents in Chicago.

The code under consideration is the one recommended by the refrigeration division of the National Electrical Manufacturers' Association. Commissioner of Finance John Hopkins is backing the measure.

Wagner Electric Corp. Moves Cleveland Office

The Wagner Electric Corporation, St. Louis, Mo., has moved its Cleveland service station and branch sales office to a new building at 3756 Carnegie Avenue.



Sealed Dehydrated Tubing A.T.S.M. Specifications (B-68-27T) for Safety First

All Wolverine Copper Tubing for refrigeration is annealed in vacuum furnaces—avoiding scale and corrosion. Tested for leaks and completely dehydrated. Delivered sealed—free from defects, dirt and moisture.

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REFRIGERANT	LIQUID REFRIGERANT		Re-ceiver lbs.	Each Evap-orator lbs.	Vapor tubing—feet per lb. of refrigerant.		
	$\frac{1}{8}$ " o. d. liquid line 1 ft. per lb.	$\frac{1}{4}$ " o. d. wall			(Tubing wall thickness .034" for all sizes.)	Pressure corresponding to 14°F. and 56° Superheat.	
Sulphur Dioxide.....	.034" wall	.045" wall	1.00	.5	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "
Methyl Chloride.....	75	100	0.67	.3	11,000	5,600	3,400
Ethyl Chloride.....	112	150	0.67	.3	8,000	4,100	2,500
Isobutane.....	115	130	0.67	.3	30,000	15,000	9,000
	175	230	0.44	.2	11,500	6,000	3,500

NOTE—The quantities indicated are for average conditions. There is considerable variation in the volume of refrigerants with their pressure, temperature and superheat.

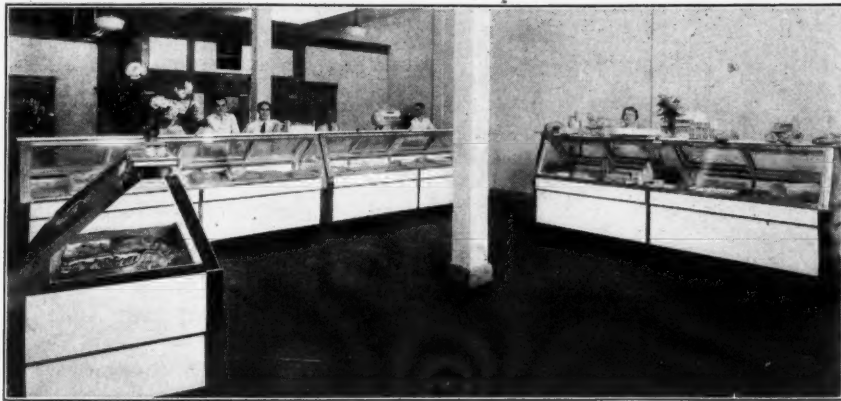
NEWS OF THE MANUFACTURERS

KELVINATOR AWARDS PRIZES TO WINNERS IN NATIONAL CONTEST

Kelvinator Sales Corp., Detroit, Mich., recently awarded winners in an "Appreciation Contest" conducted from May 15 to June 29. This sales contest was national in scope, and was conducted under the direction of H. W. Burritt, vice-president in charge of sales, who considers that it proved very successful and demonstrates the value of a sales contest during the peak selling season. Over 400 retail salesmen in 37 states received prizes.

The five highest winners in the commercial division were: M. H. Batz, Buffalo, N. Y.; Mark C. Lintner, Cincinnati, Ohio; S. A. Kelsey, Hartford, Conn.; N. Kavgas, Albany, N. Y.; E. O. Hemmington, Jacksonville, Fla. In the apartment division, the five highest were: D. H. Brown, New York City; F. J. Hughes, New York City; H. A. Dolan, Cambridge, Mass.; Glenn Bartlett, New York City; C. F. Buckman, New York City. In the builders division, the five highest were: George W. Beaudoux, Columbus, Ohio; Walter Landback, Detroit, Mich.; E. J. Sullivan, Buffalo, N. Y.; L. E. Stempfle, Detroit, Mich.; M. L. Kidner, Pittsburgh, Pa. The five highest in the domestic division were: W. I. Taylor, Kansas City, Mo.; J. D. Barnard, Cumberland, Md.; Sam West, Denver, Colo.; A. N. Trumpane, Chicago, Ill.; F. J. Metzler, Los Angeles, Calif. In the general division,

Modern Equipment Gives Merchant Increased Display Space



McCray cases with electric refrigeration equipment have been installed in the E. J. Tuthill & Son Market at Orlando, Fla. The McCray equipment includes an 8' x 10' cooler, three full-vision display cases, two fish cases and an ice chest. Todd Hyatt, distributor at Orlando, closed this order.

the five highest were: Albert J. Danielson, West New York, N. J.; Albert J. Heinen, Minneapolis, Minn.; Bernard R. Gottlieb, Hackensack, N. J.; Beryl Crist, Port Arthur, Texas; I. Hundley, Miami, Fla.

The leading salesmen were: F. J. Hughes, apartment division sales manager, Kelvinator Sales Corp., New York, N. Y., first place apartment division; V. J. McIntyre, sales manager, Dalmryple Kelvinator Co., Detroit, Mich., second place apartment division; Henry Nossler, sales manager, Kelvinator Sales Corp., Jamaica, L. I., first place domestic division; Maurice Webb, sales manager, Kelvinator Philadelphia, Inc., Philadelphia, Pa., second place domestic division; H. W. Summers, sales manager, Consumers Power Co., Grand Rapids, Mich., first place commercial division; O. J. Hinger, sales manager Kelvinator Leonard Corp., Pittsburgh, Pa., second place commercial division; S. A. Kelsey, sales manager, Frederick Raff Co., Hartford, Conn., first place general division; James M. Eakins, sales manager Public Service Co. of Colorado, Denver, Colo., second place general division; R. W. Walsh, sales manager builders division, Dalmryple Kelvinator Co., Detroit, Mich., first place builders division.

COPELAND MEN TO FORM ATHLETIC ASSOCIATION

The formation of an athletic association among officials and employees is one outgrowth of the golf tournament staged Saturday, August 3, at Hawthorne Valley Country Club by members of the Copeland Products, Inc., factory organization. The athletic association was proposed by Louis Ruthenburg, president, several days later when prizes were awarded the victors in the tournament. The suggestion met with approval and President Ruthenburg recommended appointment of a committee to formulate plans for the association which would be self-governing, and to be presented at a later meeting. Otto Lonske, traffic manager, was made chairman of the committee.

The golf tournament was a success. Six foursomes participated. The winners, their records and the prizes follow: W. S. Race—first prize, leather golf bag; low net foursome prize, dozen golf balls; first prize most pars, sun glasses and bathing belt; most birdies, bridge set and athletic belt. Bob Watkins—second prize driver and brassie; low net foursome prize, dozen golf balls. L. H. Howe—third prize, tool kit; low net foursome prize, dozen golf balls. R. Northrop—fourth prize, No. 7 Spaulding iron; first prize kickers handicap, silver humidifier.

O. G. Lonskey—fifth prize, golf bag; low net foursome prize, dozen golf balls. B. P. Watkins—sixth prize, electric clock. A. M. Taylor—sixth prize, bottle of perfume; low net foursome prize, dozen golf balls. H. Roberts—eighth prize Handy Vac. O. F. Nelson—ninth prize, golf sweater.

E. J. Champine—tenth prize, pen and pencil set; second prize most pars, bathing belt. H. Newcombe—low net foursome prize, dozen golf balls; second prize kickers handicap, two gallons liquid granite. H. Roche—third prize kickers handicap, pair rubber boots; L. H. Buhs—low gross prize, pair golf shoes. S. W. Taylor—high net prize, hand engraved wall plate, athletic belt and Manhattan tee. C. Clayton—high gross prize platinum loving cup with ebony base; athletic belt, and Manhattan tee.

Abner Davis, Jr., Named Sales Manager of Wetmore-Savage Co.

Wetmore-Savage Co., Norge distributors for Boston territory, announce the appointment of Abner Davis, Jr., as sales manager. A. D. Hayes, Montpelier, Vt., was recently appointed dealer by this company.

ARCTIC-AIRE OFFERS LINE OF COMMERCIAL WATER COOLING UNITS

THE Arctic-Aire Co., Inc., Baltimore, Md., organized by Carter F. Hall, announces a new line of water cooling units for commercial and railroad equipment. The complete cooling system is built into the drinking fountain, giving cold water at the bubbler and faucet. A line of vitreous enamel pedestals, in which there is space for the cooling unit, is now being designed for production in limited quantities, and they will harmonize in color and specific architectural design.

The principle of heat transfer employed is through a corrugated spiral tube depth such as to cause metal-to-metal contact, with an inner tube immersed in a brine solution. The spiral space between the inner and outer tube is the space through which the water flows. The pencil action on the water is broken up in such a manner as to cause every particle of the water to come in contact with the metal surface within a very short distance of travel, allowing enough expansion in case of freezing. The refrigerant flows through the inner tube. This unit is so designed as to take care of peak loads at a pre-determined range of temperature of outlet water. The pump unit used is a special design, self-contained unit.

The water cooler designed for rail-

roads comprises a hollow casing enclosing a water cooling container in the form of a water pipe, to which the apparatus is directly applied. The upright casing encloses a condenser, fin tube type, for cooling the compressed refrigerant. The condenser and pump unit are cooled by means of a draft of air entering at the bottom and from beneath the car, through the floor, by an opening registering with the bottom of the casing. The air is led upwardly through the casing by means of a pipe connected to the casing above the compressor and connected with the ventilator at the top of the coach.

The portion of the system containing the refrigerant is hermetically sealed and separated from the interior of the car, so that in case of accidents or other causes, the refrigerant does not escape into the passenger compartment. In case of leakage, the vapor is carried outside with the cooling air.

The refrigerant is led upwardly through and inside the water cooling compartment, extending upwardly through and within a brine tank which surrounds the standpipe. This brine tank is also known as a hold-over. The water to be cooled enters a corrugated spiral tube of a depth such as to cause metal-to-metal contact with an inner tube, which is the tube through which the refrigerant flows.

There is a fragile container in the water cooling compartment, and also, in the casing containing the compressor and condenser coil, which contains an antidote for the refrigerant. This container is sealed and carefully designed so that it is broken and the contents released only when the refrigeration system is punctured.

BAKER ICE MACHINE REPORTS 41 PER CENT GAIN IN SALES

An increase of 41 per cent in the number of ice plants sold by the Baker Ice Machine Co., of Omaha, was announced by J. L. Baker, president of the company, at the close of the fiscal year, August 1. Foreign orders showed the larger increase.

At present the Baker ice machines are sold in thirty-seven countries, as well as every state in this country. Latin America, Africa, Europe and the Orient, Celebes, Malta and Ceylon all are good fields for this company.

Organize New York Co. to Deal in Electric Refrigerators

Giffords, Inc., Queens Borough, New York City, has been organized to deal in electric refrigerators. Officers of the company are Joseph Herenstein, Harry Herenstein, and William Herenstein, Jackson Heights, L. I.

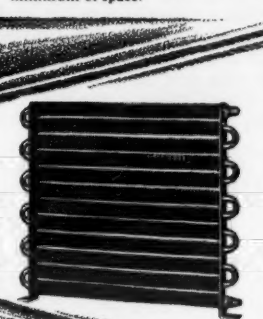
ICE CUBE TRAY DIMENSIONS

NOTE—A number of queries have been received recently by the News relative to ice cube tray dimensions. Through the courtesy of G. M. Dwelley, Inc., Detroit, national distributor of Flexo-Tray, the rubber ice tray, the following dimensions have been made available.

FRIGIDAIRE			Width	Length
24 cubes	bottom	4 $\frac{5}{8}$ "	12 $\frac{1}{2}$ "	
	top	5"	12 $\frac{7}{8}$ "	
21 cubes	bottom	4 $\frac{5}{8}$ "	11"	
	top	5"	11 $\frac{1}{4}$ "	
18 cubes	bottom	4 $\frac{5}{8}$ "	9 $\frac{3}{8}$ "	
	top	5"	9 $\frac{5}{8}$ "	
15 cubes	bottom	4 $\frac{5}{8}$ "	7 $\frac{3}{4}$ "	
	top	5"	8"	
12 cubes	bottom	2 $\frac{3}{4}$ "	9 $\frac{1}{4}$ "	
	top	2 $\frac{7}{8}$ "	9 $\frac{1}{2}$ "	
All Frigidaire trays have inside depth of 1 $\frac{7}{8}$ ".				
KELVINATOR				
27 cubes	bottom	4 $\frac{3}{4}$ "	11 $\frac{1}{2}$ "	
	top	5"	11 $\frac{3}{4}$ "	
21 cubes	bottom	4 $\frac{3}{4}$ "	8 $\frac{1}{8}$ "	
	top	5"	8 $\frac{3}{8}$ "	
All Kelvinator trays have depth of 1 $\frac{1}{2}$ ".				
GENERAL ELECTRIC				
28 cubes—flat bottom	bottom	5-1/16"	9"	
	top	5 $\frac{1}{8}$ "	9 $\frac{1}{8}$ "	
28 cubes—rounded bottom		same as flat bottom		
All General Electric trays 1 $\frac{1}{2}$ " deep.				
SERVEL				
12 cubes	bottom	3 $\frac{3}{4}$ "	9 $\frac{1}{4}$ "	
	top	3 $\frac{3}{4}$ "	9 $\frac{1}{4}$ "	
10 cubes (also Electrolux)	bottom	3 $\frac{3}{4}$ "	7-3/16"	
	top	3 $\frac{5}{8}$ "	7 $\frac{3}{8}$ "	
9 cubes	bottom	3 $\frac{3}{4}$ "	5 $\frac{1}{2}$ "	
	top	4"	5 $\frac{5}{8}$ "	
COPELAND				
21 cubes	bottom	3 $\frac{1}{2}$ "	9 $\frac{1}{4}$ "	
	top	3 $\frac{3}{4}$ "	9 $\frac{3}{4}$ "	
27 cubes	bottom	3 $\frac{1}{2}$ "	11 $\frac{1}{2}$ "	
	top	3 $\frac{3}{4}$ "	11 $\frac{3}{4}$ "	

Patents Searches, reports, opinions by a Specialist in REFRIGERATION
H. R. VAN DEVENTER
Solicitor of Patents
Refrigeration Engineer
342 Madison Ave., N. Y.

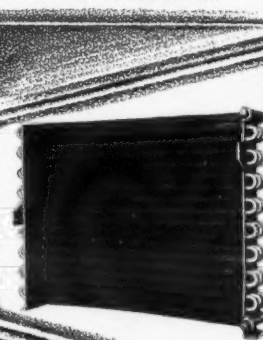
McCord's twenty-six years experience in the designing and building of radiators for leading car and truck manufacturers has enabled their engineers to develop types of condensers that combine to a greater degree than ever before maximum efficiency in a minimum of space.



Type "A" Single Row Continuous Tube McCord CONDENSER
McCord "Spiral Fin" continuous tube condensers are made by a patented process that insures a continuous metal to metal contact between the fin and the tube. Only seamless, bright, annealed tubing is used, and the fin is corrugated, giving greater radiative efficiency.



Type "C" Spiral Fin Coil McCord CONDENSER
With Seamless Headers
McCord condensers are made in many sizes and designs to meet the requirements of a wide variety of electric refrigerators. Efficient radiation and compactness are combined in the unit pictured above.



Type "A" Triple Row Continuous Tube McCord CONDENSER
McCord Radiator & Mfg. Co.
- Detroit -

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Low in Thermal Conductivity and Low in Cost

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Cold Storage Construction

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Sample and descriptive folder upon request.

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for Mechanical Refrigeration
Quality Shut-off and Cylinder valves in any standard designs or to your specifications.
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A Cordial Welcome Awaits You at
El Paso's Newest and Finest
HOTEL HUSSMANN
"On the Plaza"
EL PASO, TEXAS
300 ROOMS—300 BATHS—ALL OUTSIDE 929 UP
HARRY L. HUSSMANN, PRES. HARVEY DAY, MGR.

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